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ORDER NO. MKE9901100C1

B3

Combination VCR



PV-M1349

PV-M1359W

VV-1309

VV-1319W

PV-M1369

PV-M1379W

PV-M2059

PV-M2069W

PV-M2079



SPECIFICATIONS

ITEM		SPECIFICATION	1	2	3	4	5	ITEM		SPECIFICATION	1	2	3	4	5
VCR	Video	Head: 2 rotary heads helical scanning system	o	o	-	o	-	VCR	Tape Speed	SP: 1-5/16 i.p.s (33.35 mm/sec), LP: 21/32 i.p.s (16.67 mm/sec), SLP: 7/16 i.p.s (11.12 mm/sec)	o	o	o	o	o
		4 rotary heads helical scanning system	-	-	o	-	o			Record/Playback Time: 8 Hrs with 180 min. type tape used in SLP mode					
		Input Level: VIDEO IN Jack (Phono type) 1.0 Vp-p 75Ω unbalanced								FF/REW Time: Less than 3 min. (120 min. type tape)					
	Audio	Signal-to-Noise Ratio: SP: more than 43 dB	o	o	o	o	o	FM Radio	Tape Format	Tape width 1/2" (12.7 mm) high density tape	o	o	o	o	o
		LP/SLP: more than 41 dB													
		Horizontal Resolution: Color/Monochrome: more than 230 lines						DISPLAY	Band Range	87.5 ~ 108.1 MHz	o	-	o	o	o
		Head: Normal Mono: 1 stationary head	o	o	o	o	o								
		Input Level: AUDIO IN Jack (Phono type) -10 dBv 50kΩ unbalanced	o	o	o	o	o		Picture Tube	13 inch measured diagonal 90° deflection Picture Tube	o	o	o	-	-
		Frequency Response: Normal Mono: SP: 100 Hz ~ 8 kHz								20 inch measured diagonal 90° deflection Picture Tube	-	-	-	o	o
		LP: 100 Hz ~ 8 kHz							GENERAL	Power Source	120V AC ± 10%, 60 Hz ± 0.5%	o	o	o	o
		SLP: 100 Hz ~ 5 kHz								Power Consumption	Approx. 69 watts (Power On), Approx. 4.5 watts (Power Off)	o	o	o	-
	Tuner	Signal-to-Noise Ratio: Normal Mono: SP: more than 42 dB	o	o	o	o	o			Television System	EIA Standard (525 lines, 60 fields) NTSC Color Signal	o	o	o	o
		LP/SLP: more than 40 dB								Operating Condition	41°F(5°C) ~ 104°F(40°C) (Temperature)	o	o	o	o
		Wow and Flutter: Normal Mono: SP: Less than 0.2% WFMS								Dimension	15-3/16"(386 mm)(W) X 15-3/16"(385 mm)(H) X 14-3/4"(374 mm)(D)	o	o	o	-
		LP: Less than 0.3% WFMS								Weight	26.4 lbs. (12 kg)	o	o	o	-
		SLP: Less than 0.4% WFMS									50.7 lbs. (23 kg)	-	-	-	o
		Broadcast Channels: VHF 2 ~ 13, UHF 14 ~ 69													
		CABLE Channels: Midband A through I (14 ~ 22)													

1. PV-M1349/ PV-M1359W
2. VV-1309/ VV-1319W
3. PV-M1369/ PV-M1379W
4. PV-M2059/ PV-M2069W
5. PV-M2079

Weight and dimensions shown are approximate.
Designs and specifications are subject to change without notice.

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1 SAFETY PRECAUTIONS

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GENERAL GUIDELINES

1. IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by  in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X-RADIATION, shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

2. An Isolation Transformer should always be used during the servicing of Combination VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect Combination VCR from being damaged by accidental shorting that may occur during servicing.
3. When servicing, observe the original lead dress, especially the lead dress in the high voltage circuits. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
4. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers, shield, and isolation R-C combinations are properly installed.
5. Before turning the receiver on, measure the resistance between B+ line and chassis ground. Connect (-) side of an ohmmeter to the B+ lines, and (+) side to chassis ground. Each line should have more resistance than specified, as follows :

(Model: A, B, C, D, E, F)

6. B+ Line

Minimum Resistance

7. 115V

1K ohm (Cold chassis ground)

8. 24V

180 ohms (Cold chassis ground)

9. 15V

110 ohms (Cold chassis ground)

(Model: G, H, I)

10. B+ Line

Minimum Resistance

11. 115V

1K ohm (Cold chassis ground)

12. 27V

180 ohms (Cold chassis ground)

13. 17V

110 ohms (Cold chassis ground)

14. When the TV set is not used for a long period of time, unplug the power cord from the AC outlet.

15. Potentials, as high as 25.0KV (Model: A, B, C, D, E, F) or 30.0KV (Model: G, H, I) are present when this TV set is in operation. Operation of the TV set without the rear cover involves the danger of a shock hazard from the TV set power supply. Servicing should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the picture tube to the CRT ground of receiver before handling the tube.

16. After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

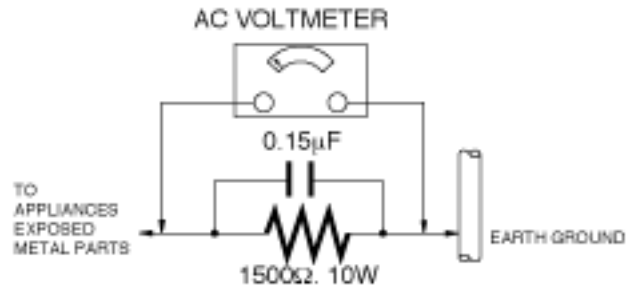
1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. For physically operated power switches, turn power on. Otherwise skip step 2.
3. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the receiver, such as screwheads, connectors, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1 M ohm and 12 M ohms. When the exposed metal does not have a return path to the chassis, the reading must be infinity.

LEAKAGE CURRENT HOT CHECK

1. Plug the AC cord directly into the AC outlet.
2. Do not use a isolation transformer for this check.
3. Connect a 1.5K ohms, 10 watts resistor, in parallel with a 0.15 micro farad capacitor, between each exposed metallic part on the set and a good earth ground , as shown in Figure 1.
4. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
5. Check each exposed metallic part, and measure the voltage at each point.
6. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
7. The potential at any point should not exceed 0.75 volt RMS.
8. A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks. Leakage current must not exceed 1/2 milliampere. In case a measurement is outside of the limits specified, there is a possibility of shock hazard, and the receiver should be repaired and rechecked before it is returned to the customer.

Figure 1

Hot-Check Circuit



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2 X-RADIATION

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WARNING :

1. The potential source of X-Radiation in TV sets is the High Voltage section and the picture tube.
2. When using a picture tube test fixture for service, ensure that the fixture is capable of handling 25.0KV (Model: A, B, C, D, E, F) or 30.0KV (Model: G, H, I) without causing X-Radiation.

NOTE :

It is important to use an accurate periodically calibrated high voltage meter.

1. Reduce the brightness to minimum.
2. Set the SERVICE switch to SERVICE .
3. Measure the High Voltage. The meter reading should indicate 23.5 +/- 1.5KV (Model: A, B, C, D, E, F) or 28.5 +/- 1.5KV (Model: G, H, I).
4. If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.
5. To prevent an X-Radiation possibly, it is essential to use the specified picture tube.

HORIZONTAL OSCILLATOR DISABLE CIRCUIT TEST

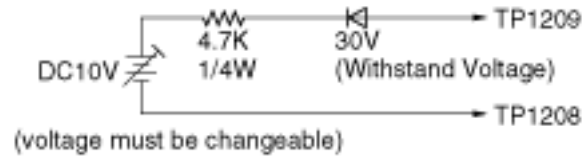
SERVICE WARNING :

The test must be made as a final check before set is returned to the customer.

CONFIRMATION OF X-RAY MOVEMENT

1. Turn off TV set.
2. Connect the circuit below between TP1209 and TP1208.

Figure 2



3. Turn on DC Power, and then turn on the set. Confirm that the picture is on the screen properly.
4. Confirm that the picture goes out of horizontal sync while getting down the voltage to DC Power.
5. If this does not occur even when getting down the voltage of DC Power to 0V, it means that X-ray protect circuit is not operating.

Further confirmation and repair is required.

REPAIR PROCEDURES OF HORIZONTAL OSCILLATOR DISABLE CIRCUIT

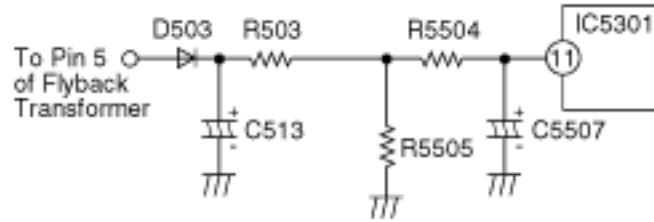
1. Connect a DC voltmeter between capacitor C513 (+) on the Main circuit board and chassis ground.
2. If approximately +21.9V is not present at that point when 120V AC is applied, find the cause. Check R503, R5505, C5507, C513 and D503.
3. Carefully check above specified parts and related circuits and parts. When the circuit is repaired, try the horizontal oscillator disable circuit test again.

CIRCUIT EXPLANATION

HORIZONTAL OSCILLATOR DISABLE CIRCUIT

The positive DC voltage, supplied from the D503 cathode for monitoring high voltage, is applied to the IC5301 Pin11 through R503 and R5504. Under normal conditions, the voltage at IC5301 Pin 11 is less than approx 3V. If the high voltage at Flyback Tr Pin 5 exceeds the specified voltage, the positive DC voltage which is supplied from the D503 cathode also increases. The increased voltage is applied to IC5301 Pin11 through R503 and R5504. Due to the increased voltage at IC5301 Pin11, the horizontal oscillator frequency increases, the picture goes out of horizontal sync, the beam current decreases and the picture becomes dark in order to keep X-radiation under specification.

Figure 3



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3 PREVENTION OF ELECTROSTATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES

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Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors are semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION:

Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

"NOTE to CATV system installer :

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical."

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4 OPERATION GUIDE

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4.1 BASIC OPERATION

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5.1.8.2 Electrical Method

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5.1.9 WIRE AND LEAD POSITION DIAGRAM

5.1.10 DEFEATING THE AUTO TRACKING

5.1.11 HOW TO SET TRACKING TO THE NEUTRAL POSITION

5.1.12 CYLINDER ROTATION IN STOP MODE

5.1.13 BLACK SCREWS ON THE CHASSIS

5.1.14 HOW TO RESET ALL COMBINATION VCR MEMORY FUNCTIONS

5.1.15 HOW TO CONFIRM AUTO CLOCK SET FEATURE

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5.2.1 HOW TO READ THE IDENTIFICATION MARK OF CHIP COMPONENTS.

5.2.2 HOW TO READ THE VALUES OF THE CYLINDRICAL TYPE CHIP COMPONENTS.

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5.1.1 SIMPLIFIED FAULT FINDING DATA

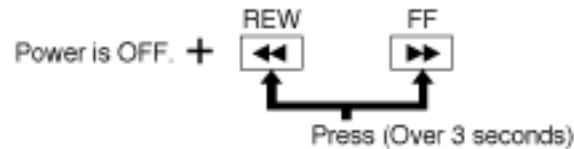
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Simplified Self-Diagnostic System facilitates finding the cause of the fault. 4 digit for fault code and communication for IIC bus code will be displayed on TV screen.

The Simplified Fault finding data is stored in the Memory IC (IC6004). This data is cleared after it is displayed and then, the POWER button is pressed back on.

1. With power turned off, press FF and REW buttons on unit together for over 3 seconds.

Fig. 1-1



2. TV power goes on and the unit goes into service mode.

4 digit for fault code and communication for IIC bus code will be displayed.

Fig. 1-2

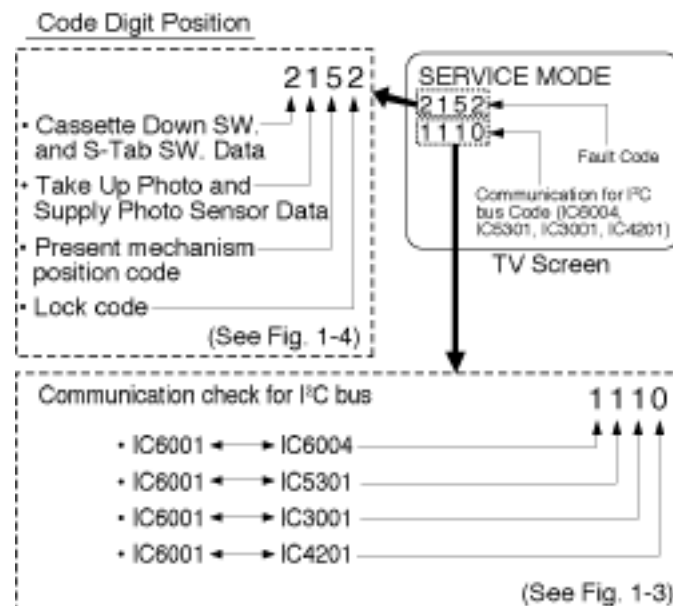


Fig. 1-3

(Communication check for I²C bus)

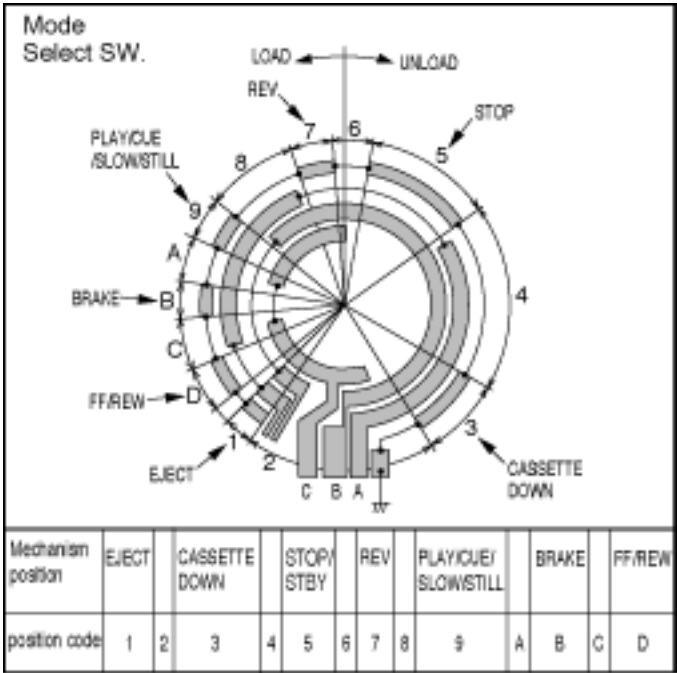
Explanation of Codes	Code No.			
Communication check for I ² C bus (IC6001↔IC6004) ----- NG OK	0 1			
Communication check for I ² C bus (IC6001↔IC5301) ----- NG OK		0 1		
Communication check for I ² C bus (IC6001↔IC3001) ----- NG OK			0 1	
Communication check for I ² C bus (IC6001↔IC4201) ----- NG OK Note: For Normal Audio models, only "0" will be displayed as code No. because IC4201 (Hi-Fi Audio IC) is not used.				0 1

Fig. 1-4

(Fault Code)

Explanation of Codes	Code No.			
S-Tab SW. Data • S-Tab SW. is off. • S-Tab SW. is on.	1 2			
Take Up and Supply Photo Sensor Data • No light detected at either sensor. • Take Up Photo Sensor detected at beginning of tape. • Supply Photo Sensor detected at end of tape. • Light detected at both sensors.		1 2 3 4		
Present Mechanism Position Code Mechanism Position is indicated. (Refer to Fig. 1-5.)			1 2 3 4 5 6 7 8 9 A B C D	
Lock Code (See Note) • VCR is not in shut-off condition. • Reel lock. • Cylinder lock. • Exceeds loading/unloading time. (Mechanism Lock) • Exceeds Cassette loading/unloading time. (Cassette Lock) Tape Unloading (direction) Tape Loading (direction)				0 1 2 3 1 2 4 4

Fig. 1-5



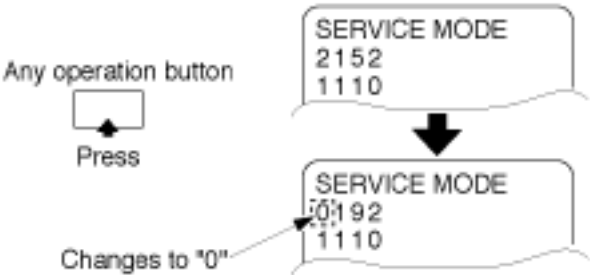
Note:

When 1 to 4 listed in Lock code occurs, the VCR stops and all VCR function buttons except for power become non-operational.

- 3. Press any operation button except for POWER on either the unit, or the remote to detect that a key has been pressed.

The 1st digit changes to "0" only when key is detected.

Fig. 1-6



5.1.2 SERVICE POSITION

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The Basic Service Position does not require the use of Extension Cables. However, for more extensive servicing, Extension Cables should be used.

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5.1.2.1 Basic Service Position

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Service Position	Purpose
Service Position (1)	Mechanism check Mechanical adjustment Electrical adjustment
Service Position (2)	Main C.B.A. check

[5.1.2.1.1 Service Position \(1\)](#)

[5.1.2.1.2 Service Position \(2\)](#)

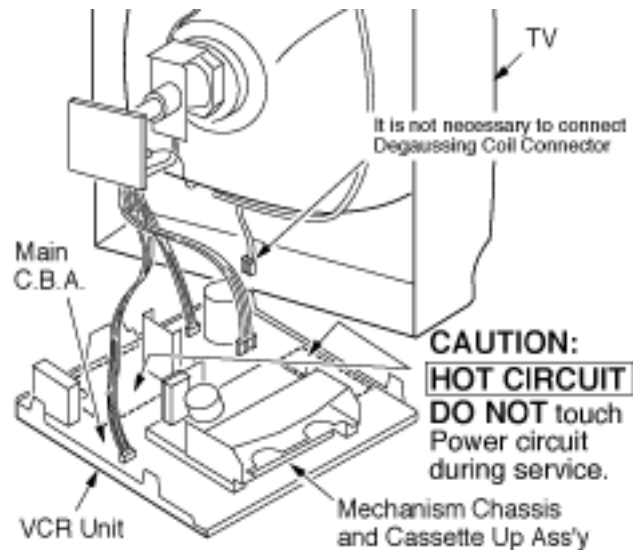
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5.1.2.1.1 Service Position (1)

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1. Remove Rear Cover, VCR Unit, and Top Shield Plate Ass'y. Then, place VCR Unit as shown.

Fig. 2-1



CAUTION:

HOT CIRCUIT (Primary circuit) exists on the Main C.B.A.

Use extreme care to prevent accidental shock when servicing.

Note:

When disassembling/assembling, refer to "[CABINET SECTION](#)" in Disassembly/Assembly Procedures.

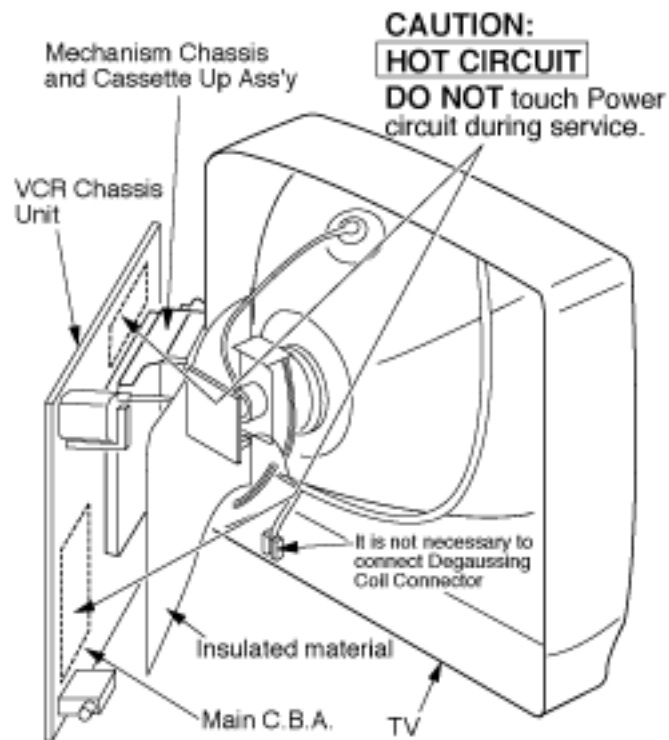
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5.1.2.1.2 Service Position (2)

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1. Remove Rear Cover, VCR Unit, and Top Shield Plate Ass'y.
2. Remove VCR Chassis Unit from the frame.
3. Place VCR Chassis Unit as shown.

Fig. 2-2



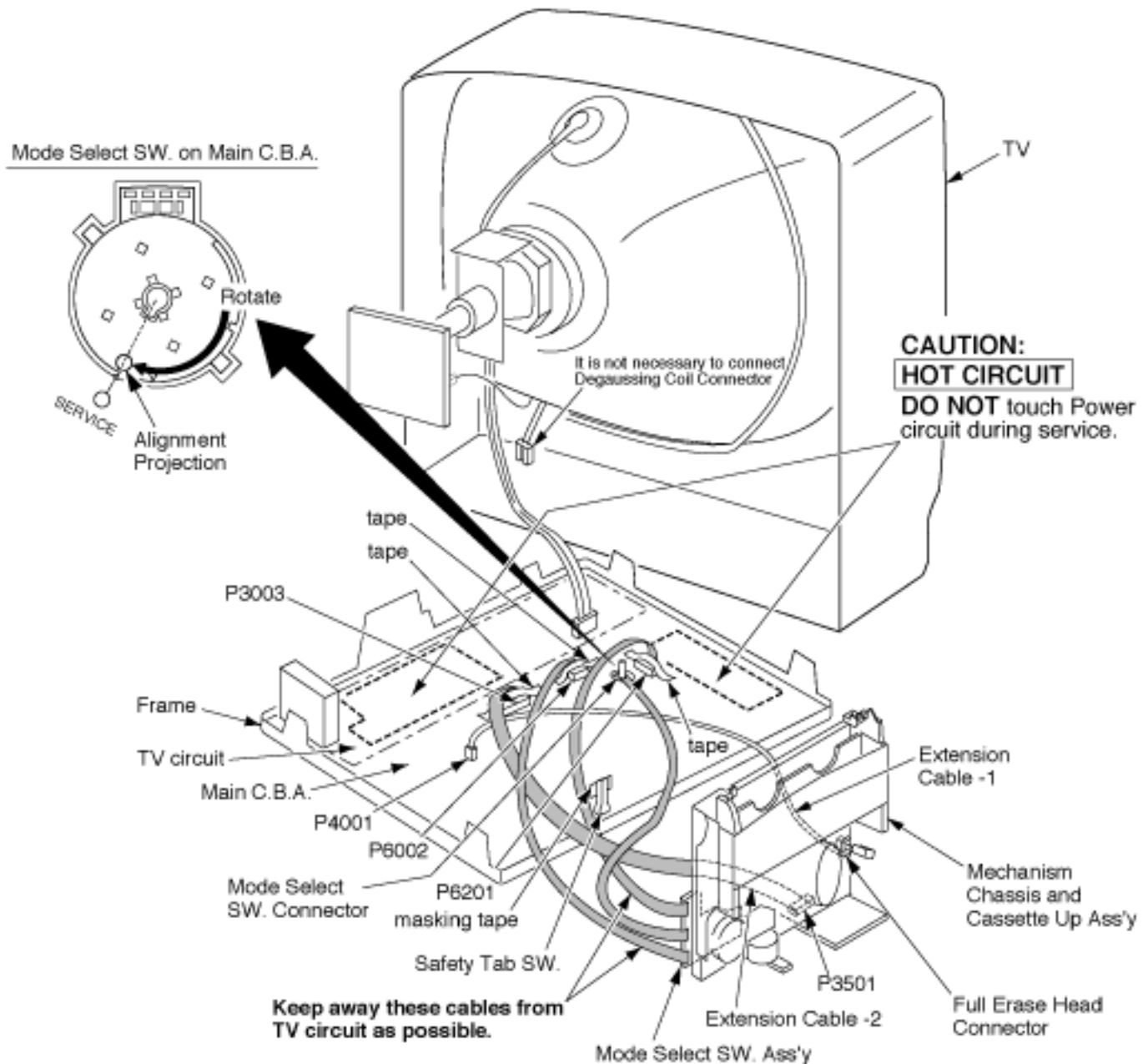
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5.1.2.2 Service Position with Extension Cable Kit

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Fig. 2-3

In Service Position with Extension Cable Kit, mechanism check from the Bottom Side of Mechanism Chassis and Capstan Stator Unit (Capstan Motor Drive, Loading Motor Drive Circuit) check with power on condition can be performed.



CAUTION:

HOT CIRCUIT (Primary circuit) exists on the Main C.B.A.

Use extreme care to prevent accidental shock when servicing.

Note:

When disassembling/assembling, refer to "[CABINET SECTION](#)" in Disassembly/Assembly Procedures.

[5.1.2.2.1 Extension Cable Kit \(VUZS0002\)](#)

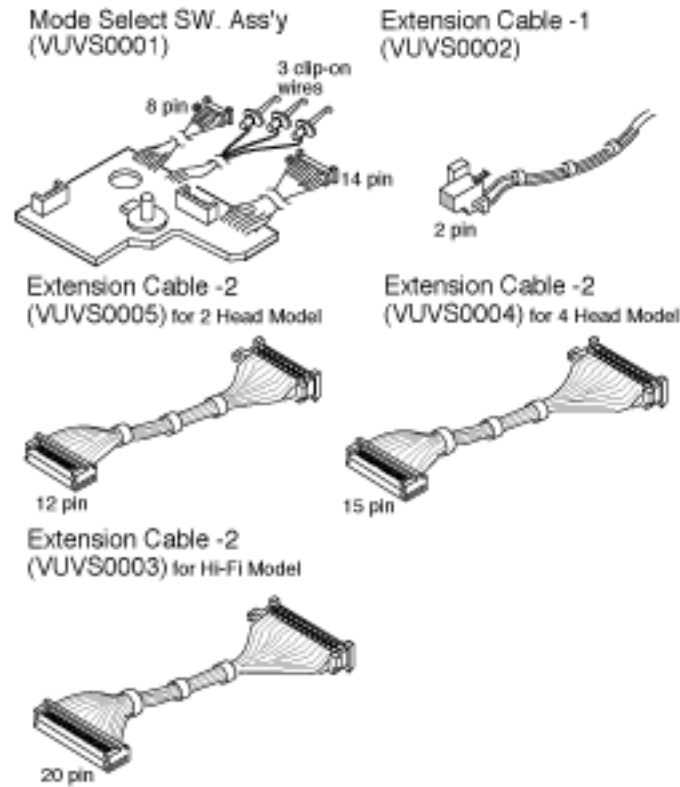
[5.1.2.2.2 How to place the unit into Service Position with Extension Cables](#)

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5.1.2.2.1 Extension Cable Kit (VUZS0002)

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Fig. 2-4



Note:

3 types of Extension Cable -2 are included in this kit. Since there is a difference in the number of P3501 Head Amp C.B.A. pins between 2 Head, 4 Head, and Hi-Fi models, be sure to use the proper cable.

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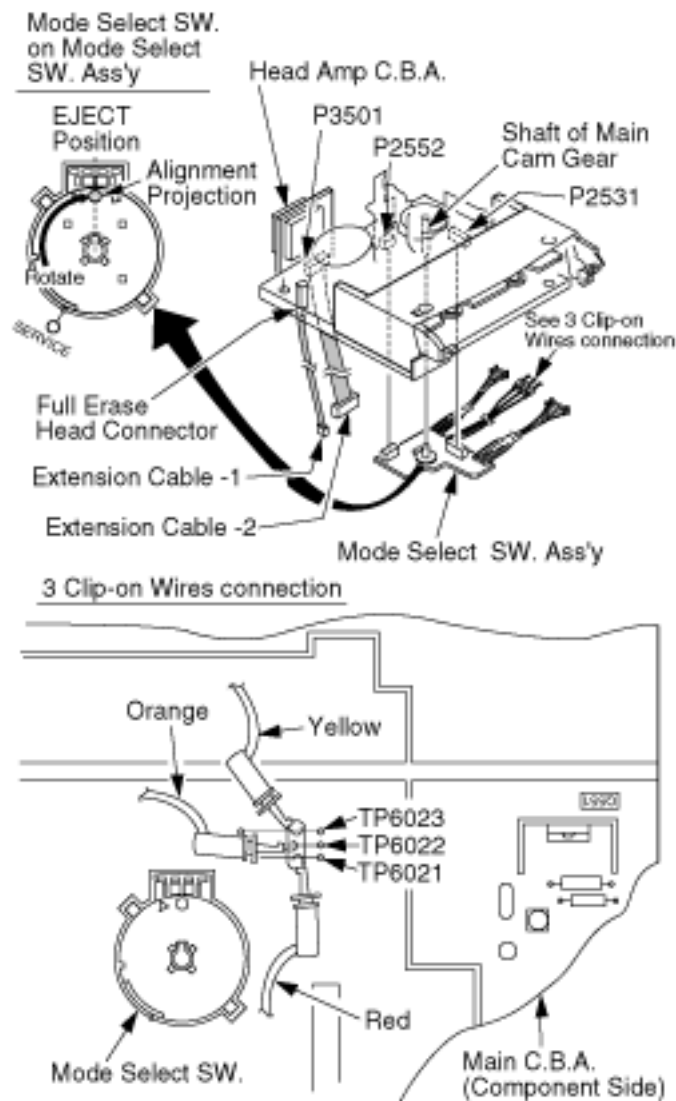
5.1.2.2.2 How to place the unit into Service Position with Extension Cables

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1. Remove Rear Cover, VCR Unit, Top Shield Plate Ass'y, Mechanism Chassis, and Cassette Up Ass'y.
2. Connect the Extension Cables as follows:

- Extension Cable -1: Full Erase Head Connector on the Mechanism Chassis Unit - P4001 on the Main C.B.A.
Note: No change in performance if pins are reversed.
- Extension Cable -2: P3501 on the Head Amp C.B.A. - P3003 on the Main C.B.A.
- Mode Select SW. Ass'y: a) 3 Clip-on Wires - Test Points on the Main C.B.A.
 - Red Wire - TP6021
 - Orange Wire - TP6022
 - Yellow Wire - TP6023
 - b) 8 Pin Connector - P6002 on the Main C.B.A.
 - c) 14 Pin Connector - P6201 on the Main C.B.A.
 - d) Set Mode Select SW. on the Mode Select SW. Ass'y to EJECT position and install onto Mechanism Chassis

Fig. 2-5



3. Place the VCR Unit as shown.
4. Secure the Extension Cables with tape as shown. When recording, cover the Safety Tab SW. with masking tape to turn this SW. on.

Note:

To avoid damaging the connectors on Main C.B.A., it is necessary to secure connectors with tape as shown.

5. Set Mode Select SW. on the Main C.B.A. to Service Position.
6. Plug the AC plug into an AC outlet.
7. Insert a cassette.

The power comes on, the tape is fully loaded, and the unit goes into the STOP Mode.

8. Place a jumper between TP6001 and GND to place the unit in Service Mode.
9. Check and/or repair the unit.
10. Press the STOP/EJECT button to eject the cassette.

Note:

When inserting a cassette again, remove the jumper between TP6001 and GND and insert the cassette. Then, reconnect the jumper.

11. After servicing, remove the jumper between TP6001 and GND to release the unit from Service Mode.

CAUTION:

HOT CIRCUIT(Primary circuit) exists on the Main C.B.A.

Use extreme care to prevent accidental shock when servicing.

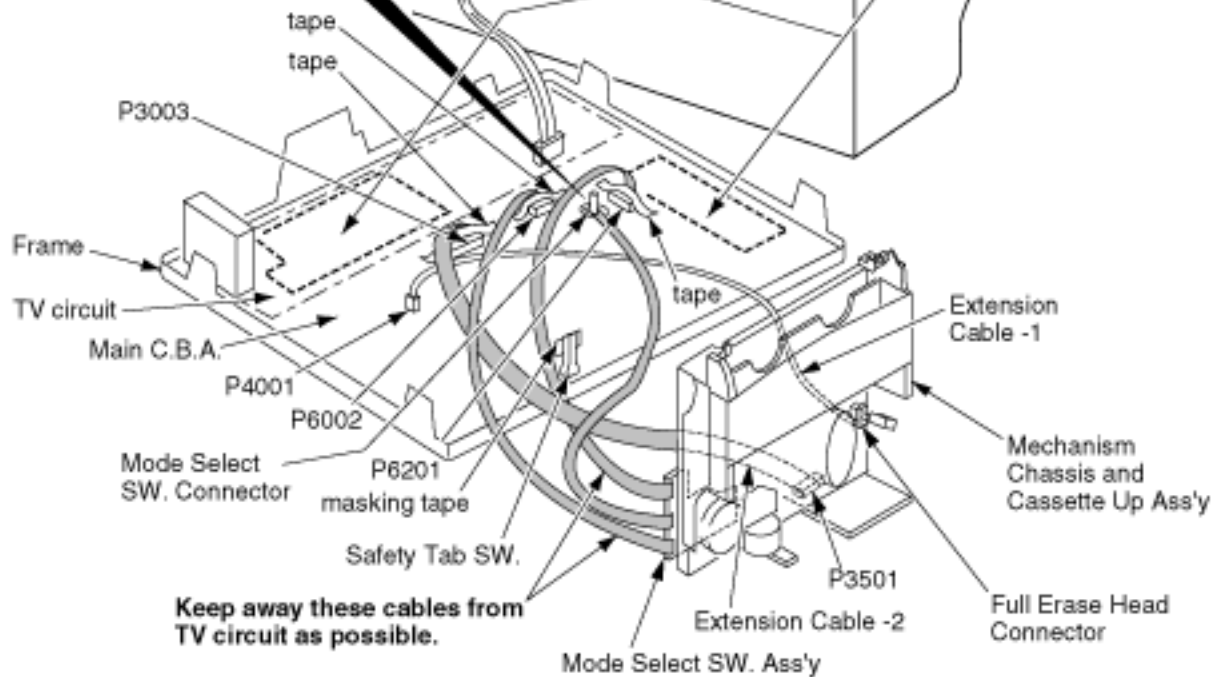
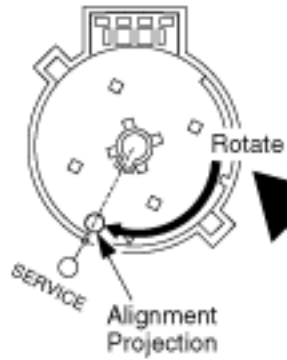
Note:

When disassembling/assembling, refer to "**CABINET SECTION**" in Disassembly/Assembly Procedures.

Fig. 2-6

Service Position

Mode Select SW. on Main C.B.A.



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5.1.3 HOT CIRCUIT

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Primary circuit exists on the Main C.B.A.

This circuit is identified as "HOT" on the C.B.A. and in the Service Manual. Use extreme care to prevent accidental shock when servicing.

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5.1.4 SERVICE MODE

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In order to inhibit detection of the Supply & Takeup Photo Transistors, Reel Sensor, and Cylinder Lock, place a jumper between TP6001 and GND.

In this mode, Mechanism movement can be confirmed. When removing Cassette Up Ass'y, it can be confirmed without a cassette.

To release from this mode, remove the jumper between TP6001 and GND.

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5.1.5 CAUTION FOR INSTALLATION OF VCR UNIT

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CAUTION:

Opener Lever may be damaged when VCR Unit is installed, with Cassette Door-Lid and Opener Lever of Cassette Up Ass'y set incorrectly.

5.1.5.1 Install the VCR Unit as follows:

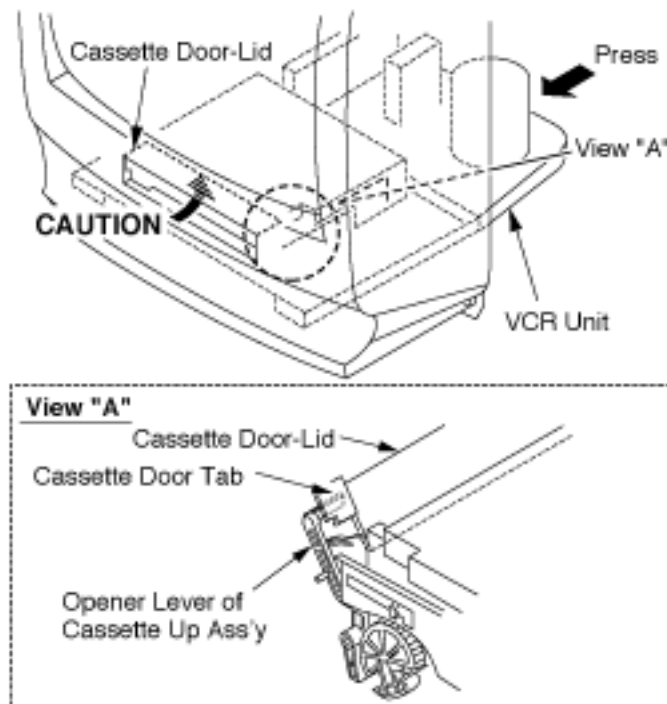
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5.1.5.1 Install the VCR Unit as follows:

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1. Swing the Cassette Door -Lid all the way open until the Cassette Door tab clears the Opener Lever.
2. Make sure that all guide tabs are aligned properly. Then, press the VCR Unit straight in.

Fig. 3



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5.1.6 HOW TO INITIALIZE MEMORY IC

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After the Memory IC (IC6004) or MainC.B.A. is replaced, be sure to set the Default value to Memory IC as shown in "Memory IC Reference Table" below.

1. Press and hold STOP, PLAY, and VOL DOWN buttons on the unit together over 5 seconds with no cassette inserted.
2. The adjustment overlay will appear to Enter EVR Adjustment mode.

Fig. 4-1



3. Set the Default value of all Control functions using a remote control as shown in "Memory IC Reference Table" below.

Note:

For Selecting Control functions and setting Default value, refer to "[HOW TO ENTER EVR ADJUSTMENT MODE](#)" and "[HOW TO ENTER EVR PG SHIFTER ADJUSTMENT MODE](#)" in Electrical Adjustment procedures.

Fig. 4-2



4. Press and hold STOP, PLAY, and VOL DOWN buttons on the unit together over 5 seconds again or press the POWER button OFF to release EVR Adjustment Mode.

The Default value will be written to Memory IC (IC6004).

5. Perform all EVR Adjustments. (Refer to "[EVR \(Electronic Variable Register\) ADJUSTMENT WITH THE REMOTE CONTROL](#)" in Electrical Adjustment procedures.)

Memory IC Reference Table

Control functions	Address	Range	Default
SUB COLOR	00	C0 – FF, 00 – 3F	00
SUB TINT	01	E0 – FF, 00 – 1F	00
SUB BRIGHT	02	C0 – FF, 00 – 3F	F0
CONTRAST	03	C1 – FF, 00	00
SUB SHARPNESS	04	E0 – FF, 00 – 1F	00
R CUT -OFF	05	00 – 7F	1E
G CUT -OFF	06	00 – FD	3C
B CUT -OFF	07	00 – FD	3C
G DRIVE	08	00 – 7F	40
B DRIVE	09	00 – 7F	40
SUB CONTRAST	0A	00 – 0F	06
H CENTER	0B	00 – 0F	08
SUB V	0C	00	00
V SIZE	0D	00 – 7F	40
V POSITION	0E	00 – 7F	40
ANR CTL	10	00 – EF	85
PICTURE CTL	11	00 – EF	82
VV COLOR	12	C0 – FF, 00 – 3F	00
VV TINT	13	E0 – FF, 00 – 1F	00
VV SHARPNESS	14	E0 – FF, 00 – 1F	F8
PG SHIFTER	15	01 – FD	80

Note:

Address is not displayed on the TV screen.
Other Addresses except above are not used.

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5.1.7 METHOD FOR LOADING/UNLOADING OF MECHANISM

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[5.1.7.1 \(Manual Method\)](#)

[5.1.7.2 \(Electrical Method\)](#)

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5.1.7.1 (Manual Method)

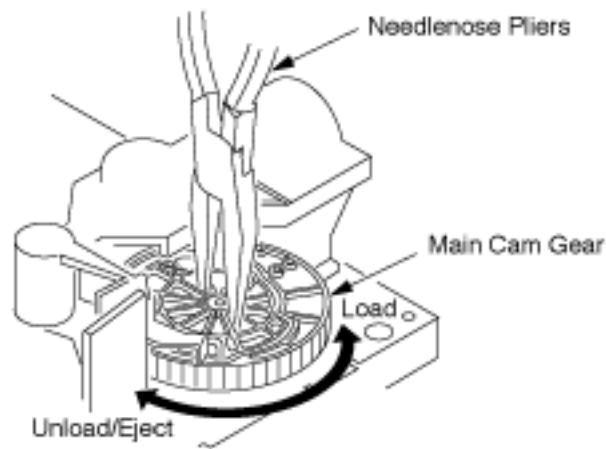
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Turn the Main Cam Gear counterclockwise (for loading) or clockwise (for unloading) using needlenose pliers etc.

Note:

Do not use this method if Mechanism is jammed or locked.

Fig. 5-1



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5.1.7.2 (Electrical Method)

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Remove the solder as shown and apply +10.0 VDC Power Supply (DC + to Portion "a," DC - to Portion "c").

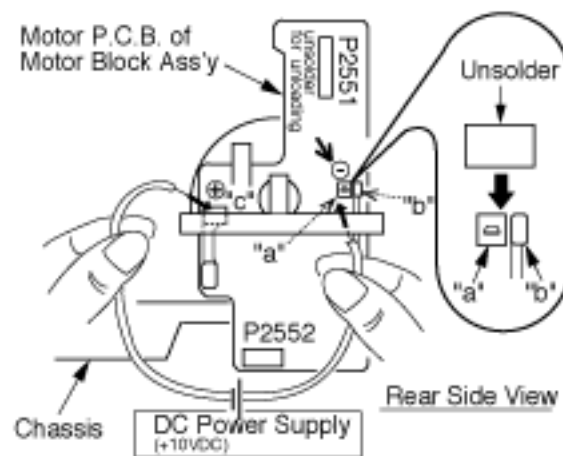
Note:

Be careful not to let the DC Power Supply Unit GND contact the chassis GND. This may damage the Loading Motor Drive IC (IC 2501).

Be sure to apply DC + to Portion "a" of Motor P.C.B.

If DC + is applied to Portion "b", the Loading Motor Drive IC (IC2501) may be damaged.

Fig. 5-2

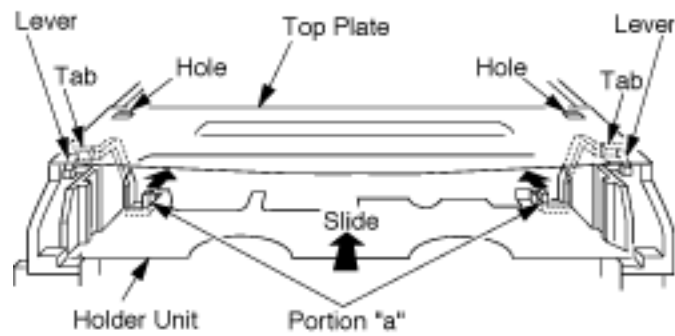


Note:

Do not forget to solder Portions "a" and "b" after loading/unloading operation is completed.

[When loading without a cassette](#) , press Portion "a" on both sides of the Holder Unit of Cassette Up Ass'y so that the Levers clear the Tabs and Holes.

Fig. 5-3



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5.1.8 HOW TO REMOVE A JAMMED TAPE

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CAUTION:

Wiper Arm Unit may be damaged or its spring may be out of place when the jammed tape is removed by force.

Remove a jammed tape as follows:

[5.1.8.1 Manual Method](#)

[5.1.8.1.1 Method -1:](#)

[5.1.8.1.2 Method -2:](#)

[5.1.8.1.3 Method -3:](#)

[5.1.8.2 Electrical Method](#)

[5.1.8.3 VCR Test Mode](#)

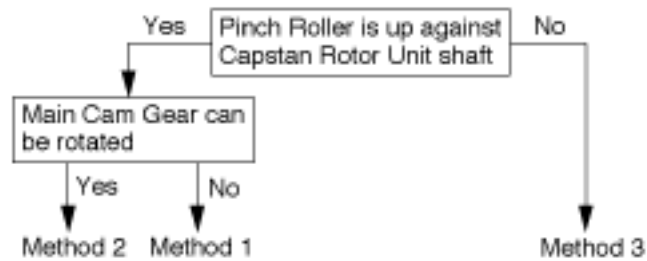
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5.1.8.1 Manual Method

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When a tape jam is encountered, check the tape loading condition and use the following procedure to remove a tape jam.

Fig. 6-1



[5.1.8.1.1 Method -1:](#)

[5.1.8.1.2 Method -2:](#)

[5.1.8.1.3 Method -3:](#)

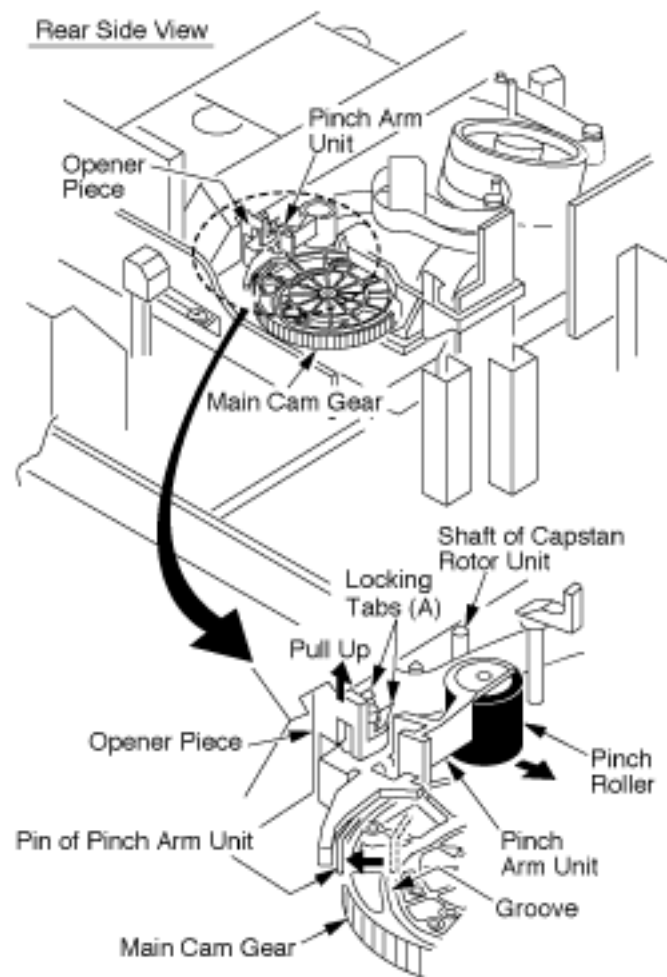
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5.1.8.1.1 Method -1:

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1. While releasing 2 Locking Tabs (A) of Opener Piece, pull the Opener Piece up as far as you can.
2. Move the pin of Pinch Arm Unit out of the groove of the Main Cam Gear so that the Pinch Roller is separated from the shaft of the Capstan Rotor Unit.

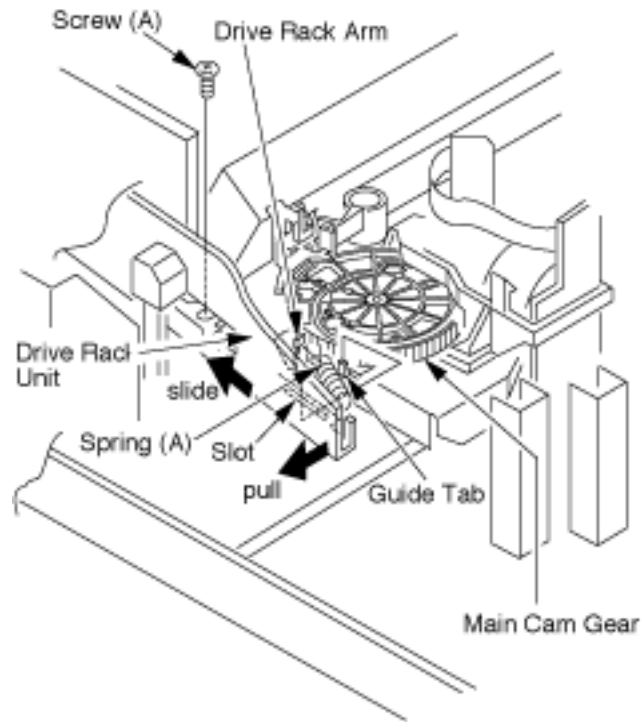
Fig. 6-2



3. Remove the tape from the tape path.
4. Rewind the tape into the cassette by rotating the Center Clutch Unit counterclockwise.
5. Unhook Spring (A) of the Drive Rack Unit.

6. Remove Screw (A).
7. Lift the Drive Rack Unit up so that the slot clears the guide tab. While pulling the Drive Rack Unit out far enough so that it clears the Drive Rack Arm, slide the Drive Rack Unit as indicated by the arrow to remove the cassette tape from the Cassette Up Ass'y.
8. Check the cause of mechanical trouble and repair.

Fig. 6-3



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5.1.8.1.2 Method -2:

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1. Rotate Main Cam Gear clockwise with needlenose pliers, etc. so that the Pinch Roller is separated from the shaft of the Capstan Rotor Unit.
2. Perform Step 3 through Step 8 of Method -1.

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5.1.8.1.3 Method -3:

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1. Perform Step 3 through Step 8 of Method -1.

Note:

After repairing mechanical trouble, make sure that all gear alignments are correct, especially the Wiper Arm Unit and Drive Rack Unit of Cassette Up Ass'y. (Refer to "[EJECT Position Confirmation](#)" of Mechanism Section in Disassembly/Assembly.)

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5.1.8.2 Electrical Method

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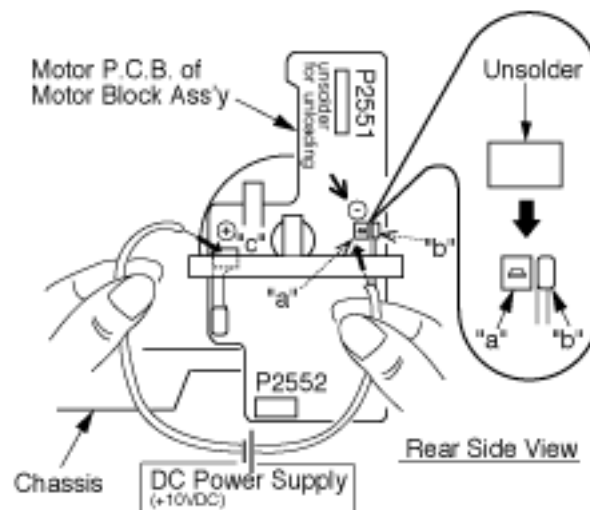
Electrical method can only be performed when the mechanism is moved by rotating the Main Cam Gear.

CAUTION:

If loading does not start in approx. 2 seconds after DC Power Supply is applied, DO NOT continue to apply DC Power Supply. Instead, perform "[\(Manual Method\)](#)."

1. Remove the solder as shown and apply +10.0 VDC Power Supply (DC + to Portion "a," DC - to Portion "c").
2. When the Loading Posts reach the fully unloaded position, remove the Power Supply.

Fig. 7



Note:

Be careful not to let the DC Power Supply Unit GND contact the chassis GND. This may damage the Loading Motor Drive IC (IC 2501).

Be sure to apply DC + to Portion "a" of Motor P.C.B.

If DC + is applied to Portion "b", the Loading Motor Drive IC (IC2501) may be damaged.

3. Rewind the tape into the cassette by turning the Center Clutch Unit counterclockwise.
4. Eject the cassette by applying +10.0VDC Power Supply again.
5. After completing the removal procedure, solder Portion "a" and Portion "b."

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5.1.8.3 VCR Test Mode

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High Voltage is inhibited by connecting Jumper J801 on the Main C.B.A., however, it is possible to check the VCR even when CRT C.B.A. and Anode Cap are removed.

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5.1.9 WIRE AND LEAD POSITION DIAGRAM

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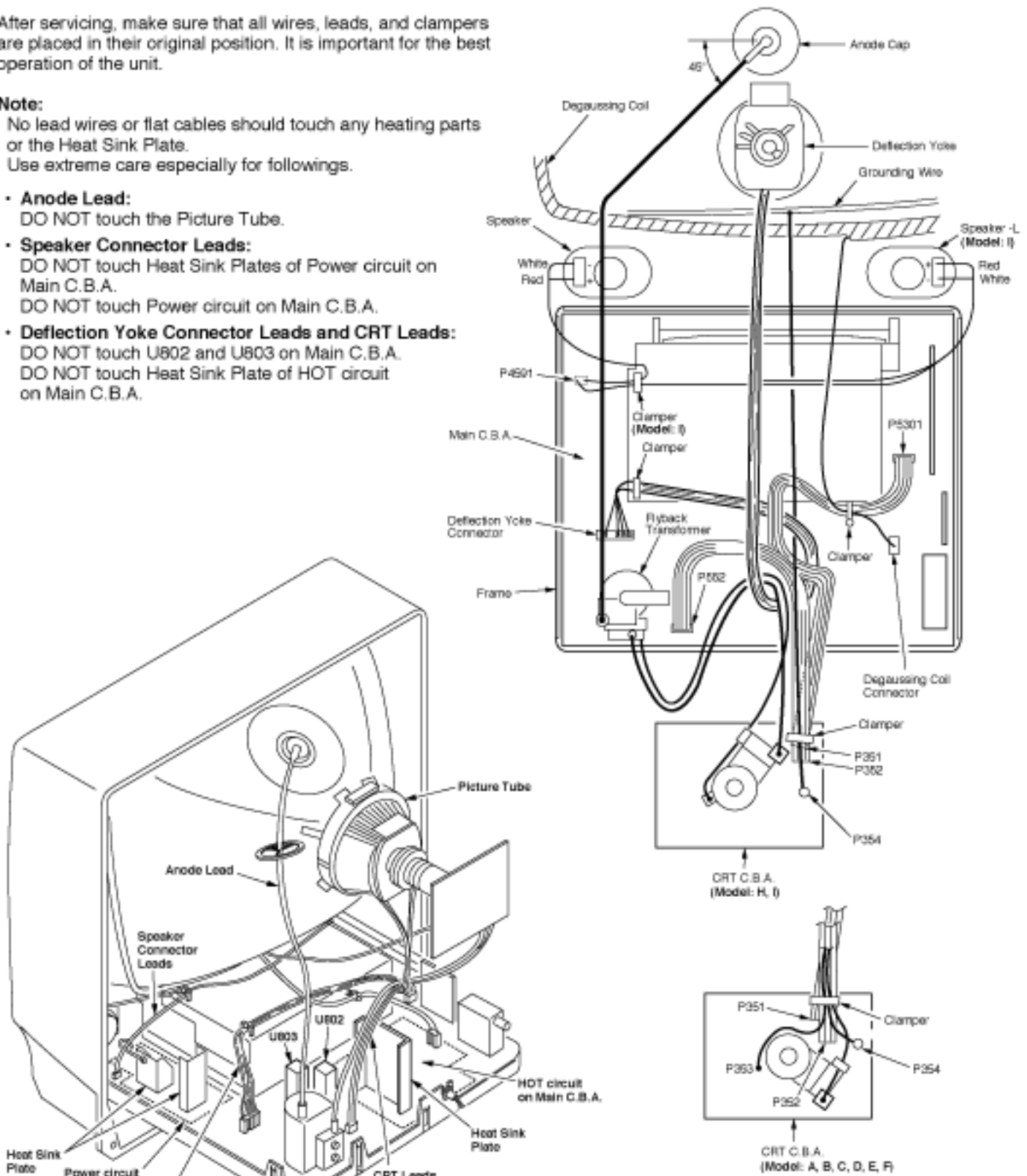
Fig. 8

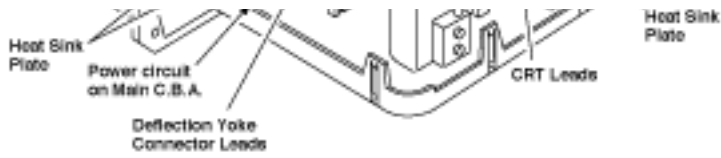
After servicing, make sure that all wires, leads, and clampers are placed in their original position. It is important for the best operation of the unit.

Note:

No lead wires or flat cables should touch any heating parts or the Heat Sink Plate.
Use extreme care especially for followings.

- **Anode Lead:**
DO NOT touch the Picture Tube.
- **Speaker Connector Leads:**
DO NOT touch Heat Sink Plates of Power circuit on Main C.B.A.
DO NOT touch Power circuit on Main C.B.A.
- **Deflection Yoke Connector Leads and CRT Leads:**
DO NOT touch U802 and U803 on Main C.B.A.
DO NOT touch Heat Sink Plate of HOT circuit on Main C.B.A.





T
CRT C.B.A.
(Model: A, B, C, D, E, F)

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5.1.10 DEFEATING THE AUTO TRACKING

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To defeat the Auto Tracking Function, place the instrument in the STOP mode and place a jumper between TP6003 and TP6009 on the Main C.B.A. The tracking will be placed in the neutral position.

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5.1.11 HOW TO SET TRACKING TO THE NEUTRAL POSITION

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Ejecting the cassette tape and then reinserting it will reset the tracking to the Neutral position.

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5.1.12 CYLINDER ROTATION IN STOP MODE

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The cylinder will continue to rotate for approximately 5 minutes after the STOP button is pressed in Play mode etc. Eject the tape in order to stop the cylinder.

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5.1.13 BLACK SCREWS ON THE CHASSIS

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Black Screws are used on the Mechanism Chassis to identify screws that require adjustment.

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5.1.14 HOW TO RESET ALL COMBINATION VCR MEMORY FUNCTIONS

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To reset (clear) the select language, channel auto set and set clock functions to their initial power on condition (power on, no cassette inserted), hold down the PLAY and FF buttons on the unit together for more than 5 seconds.

Power will shut off.

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5.1.15 HOW TO CONFIRM AUTO CLOCK SET FEATURE

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1. Connect an RF cable from the output of one unit to the input of the test unit.
2. Select corresponding RF channels.
3. Playback a recording of P.B.S. channel including clock set data and confirm this feature.

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5.1.16 VARIABLE VOLTAGE ISOLATION TRANSFORMER

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An Isolation Transformer should always be used during the servicing of Combination VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect Combination VCR from being damaged by accidental shorting that may occur during servicing.

Also, when troubleshooting the above type of Power Supply Circuit, a variable isolation transformer is required in order to increase the input voltage slowly.

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5.1.17 SPECIAL NOTE

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All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the

"ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

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5.1.18 REPLACEMENT PROCEDURE FOR LEADLESS (CHIP) COMPONENTS

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The following procedures are recommended for the replacement of the leadless components used in this unit.

1. Preparation for replacement

1. Soldering Iron

Use a pencil-type soldering iron that uses less than 30 watts.

2. Solder

Eutectic Solder (Tin 63%, Lead 37%) is recommended.

3. Soldering time

Do not apply heat for more than 4 seconds.

4. Preheating

Leadless capacitor must be preheated before installation. - (266°F ~ 302°F)

(130°C ~150°C) for about two minutes.

Note:

- a. Leadless components must not be reused after removal.
- b. Excessive mechanical stress and rubbing of the component electrode must be avoided.

Removing the leadless component

Grasp the leadless component body with tweezers and alternately apply heat to both electrodes. When the solder on both electrodes is melted, remove the leadless component with a twisting

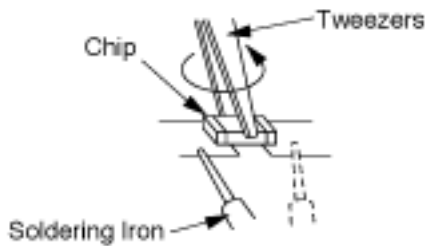
motion.

Note:

Do not attempt to lift the component off the board until the component is completely disconnected from the board by a twisting action.

Be careful not to break the copper foil on the printed circuit board.

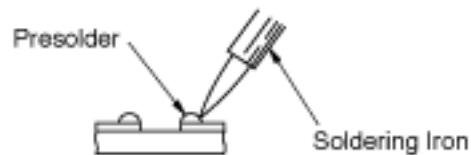
Fig. 9-1



Installing the leadless component

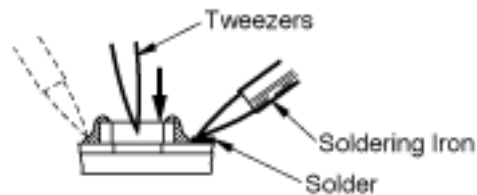
1. Presolder the contact points on the circuit board.

Fig. 9-2



2. Press the part downward with tweezers and solder both electrodes as shown below.

Fig. 9-3



Note:

Do not glue the replacement leadless component to the circuit board.

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5.1.19 MODEL NO. IDENTIFICATION MARK

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Use Marks shown in the chart below to distinguish the different models included in this Service Manual.

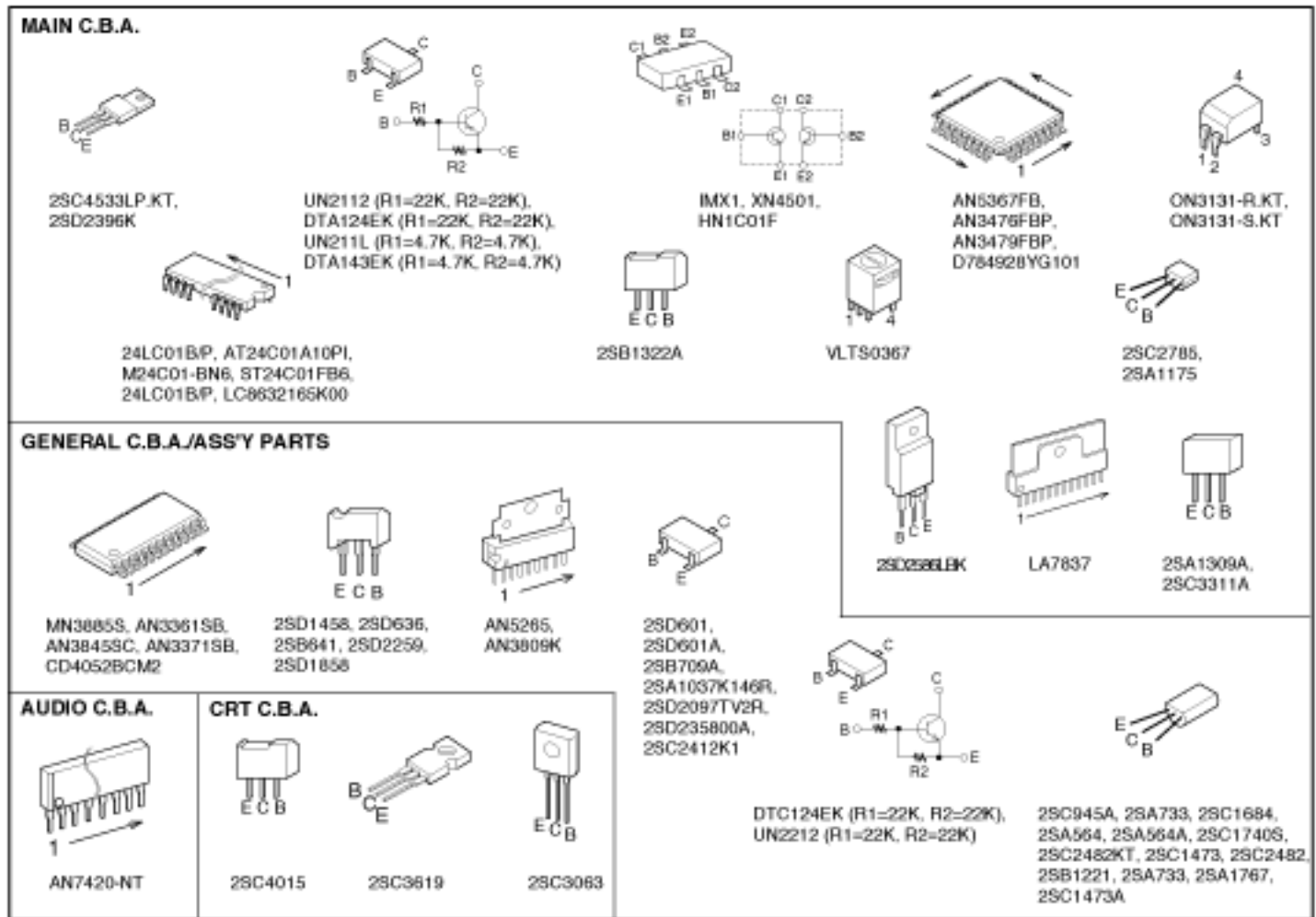
MODEL	MARK
PV-M1349	A
PV-M1359W	B
VV-1309	C
VV-1319W	D
PV-M1369	E
PV-M1379W	F
PV-M2059	G
PV-M2069W	H
PV-M2079	I
Not Used	Z

Note:
Refer to Item 3 of Schematic Diagram Notes of
Schematic Diagram and Circuit Board Layout Notes,
for mark "Z."

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5.2 IC, TRANSISTOR AND CHIP PART INFORMATION

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[5.2.1 HOW TO READ THE IDENTIFICATION MARK OF CHIP COMPONENTS.](#)

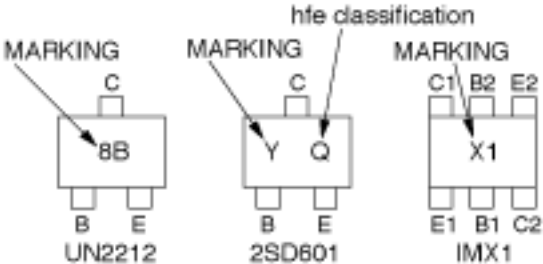
[5.2.2 HOW TO READ THE VALUES OF THE CYLINDRICAL TYPE CHIP COMPONENTS.](#)

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5.2.1 HOW TO READ THE IDENTIFICATION MARK OF CHIP COMPONENTS.

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MARKING	PART NO.	MARKING	PART NO.
B	2SB709A	8B	UN2212
Y	2SD601	5H	XN4501
Z	2SD601A	X1	IMX1
6B	UN2112	13	DTA143EK
6Q	UN211L	15	DTA124EK
1A	MA110	25	DTC124EK
1B	MA111	F	2SA1037K146R



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5.2.2 HOW TO READ THE VALUES OF THE CYLINDRICAL TYPE CHIP COMPONENTS.

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The widest color band must be read first for value.

1. RESISTOR

There are two types (ERD10LLJ... and ERD10TLJ...) of chip parts.

1. ERD10LLJ : Refer to above type.
2. ERD10TLJ : The narrow color band must be read first for value.

If this part is included in the parts list, be sure that the color band is read properly when servicing.

CAPACITOR

Because of the width of the color bands, the reading direction cannot be specified. However, the color band can be read on either side. Be sure to confirm the value using the schematic diagram.

CAUTION :

Once chip parts are removed, they must not be reused.

Always use a new part when installing a chip part.

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6 DISASSEMBLY/ASSEMBLY PROCEDURES

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[6.1 CABINET SECTION](#)

[6.1.1 Disassembly Flowchart](#)

[6.1.2 Rear Cover](#)

[6.1.2.1 Disassembly Procedure](#)

[6.1.3 VCR Unit](#)

[6.1.3.1 Disassembly Procedure](#)

[6.1.3.2 Reassembly Notes](#)

[6.1.3.2.1 Install the VCR Unit as follows:](#)

[6.1.4 CRT Unit](#)

[6.1.4.1 Disassembly Procedure](#)

[6.1.4.2 Reassembly Notes](#)

[6.1.5 Top Shield Plate Ass'y](#)

[6.1.5.1 Disassembly Procedure](#)

[6.1.6 VCR Chassis Unit](#)

[6.1.6.1 Disassembly Procedure](#)

[6.1.6.2 Reassembly Notes](#)

[6.1.7 Main C.B.A.](#)

[6.1.7.1 Disassembly Procedure](#)

[6.1.7.2 Reassembly Notes](#)

[6.1.8 Cassette Up Ass'y](#)

[6.1.8.1 Disassembly Procedure](#)

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[6.2 MECHANISM SECTION](#)

[6.2.1 Disassembly Method](#)

[6.2.2 EJECT Position Confirmation](#)

[6.2.3 Cylinder Unit](#)

[6.2.3.1 Disassembly Procedure](#)

[6.2.3.2 Reassembly Notes](#)

[6.2.4 Upper Cylinder Unit](#)

[6.2.4.1 Disassembly Procedure](#)

[6.2.4.2 Reassembly Notes](#)

[6.2.5 Opener Piece, Pinch Arm Unit, Motor Block Ass'y, and Audio Control Head Unit](#)

[6.2.5.1 Disassembly Procedure](#)

[6.2.5.2 Reassembly Notes](#)

[6.2.6 Main Cam Gear and Drive Rack Arm](#)

[6.2.6.1 Disassembly Procedure](#)

[6.2.6.2 Reassembly Notes](#)

[6.2.7 Main Lever](#)

[6.2.7.1 Disassembly Procedure](#)

[6.2.7.2 Reassembly Notes](#)

[6.2.8 P5 Arm Unit and Main Lever Drive Arm](#)

[6.2.8.1 Disassembly Procedure](#)

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[6.2.9 T Brake Unit, Changing Lever A, and T Reel Table](#)

[6.2.9.1 Disassembly Procedure](#)

[6.2.9.2 Reassembly Notes](#)

[6.2.10 Full Erase Head, Tension Arm Unit, S Spring Arm, and S Reel Table](#)

[6.2.10.1 Disassembly Procedure](#)

[6.2.10.2 Reassembly Notes](#)

[6.2.11 S Brake Arm Unit, Main Lever Guide, Loading Post Base -S, and Loading Post Base -T Unit](#)

[6.2.11.1 Disassembly Procedure](#)

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[6.2.12 Capstan Rotor Unit, Capstan Holder Unit, and SS Brake Arm Unit](#)

[6.2.12.1 Disassembly Procedure](#)

[6.2.12.2 Reassembly Notes](#)

[6.2.13 Junction C.B.A., Capstan Stator Unit, Sub Rotor, and PCB Holder](#)

[6.2.13.1 Disassembly Procedure](#)

[6.2.13.2 Reassembly Notes](#)

[6.2.14 T Loading Arm Unit and S Loading Arm Unit](#)

[6.2.14.1 Disassembly Procedure](#)

[6.2.14.2 Reassembly Notes](#)

[6.2.15 Center Clutch Unit, Changing Gear Spring, Changing Gear, Changing Lever-B, and Idler Arm Unit](#)

[6.2.15.1 Disassembly Procedure](#)

[6.2.15.2 Reassembly Notes](#)

[6.2.16 Loading Rack Unit](#)

[6.2.16.1 Disassembly Procedure](#)

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6.1 CABINET SECTION

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[6.1.5 Top Shield Plate Ass'y](#)

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[6.1.6 VCR Chassis Unit](#)

[6.1.6.1 Disassembly Procedure](#)

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[6.1.7 Main C.B.A.](#)

[6.1.7.1 Disassembly Procedure](#)

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[6.1.8 Cassette Up Ass'y](#)

[6.1.8.1 Disassembly Procedure](#)

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6.1.1 Disassembly Flowchart

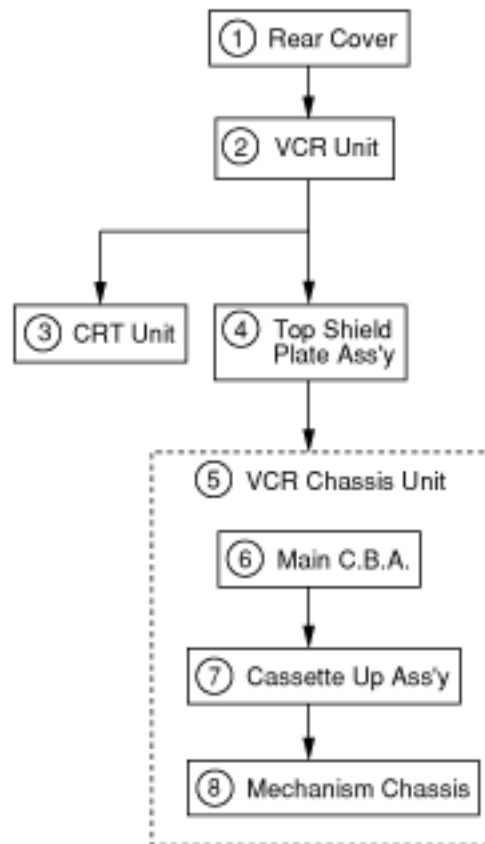
[TOP](#) [PREVIOUS](#) [NEXT](#)

Perform all disassembly procedures in the order described in the "Disassembly Flowchart" shown below. When reassembling, use the reverse procedure.

CAUTION:

Disconnect AC plug before disassembly.

Fig. D1



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6.1.2 Rear Cover

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[6.1.2.1 Disassembly Procedure](#)

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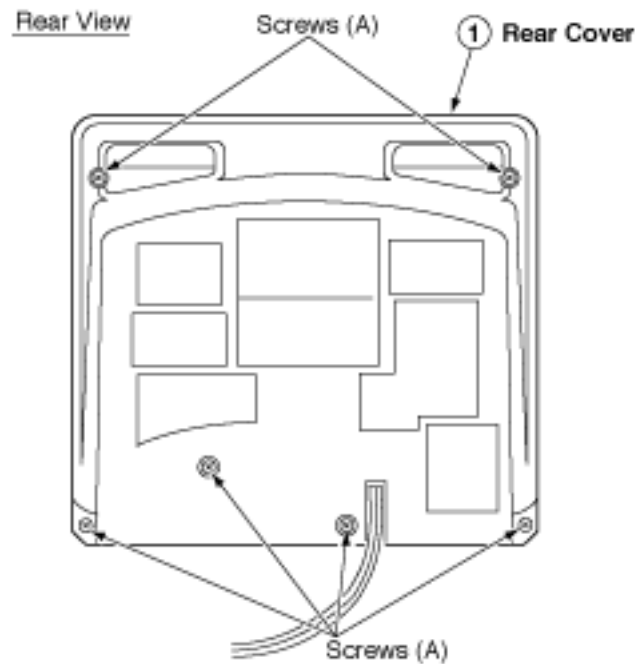
6.1.2.1 Disassembly Procedure

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(Model: A, B, C, D, E, F)

1. Remove 6 Screws (A). Then, pull the Rear Cover away.

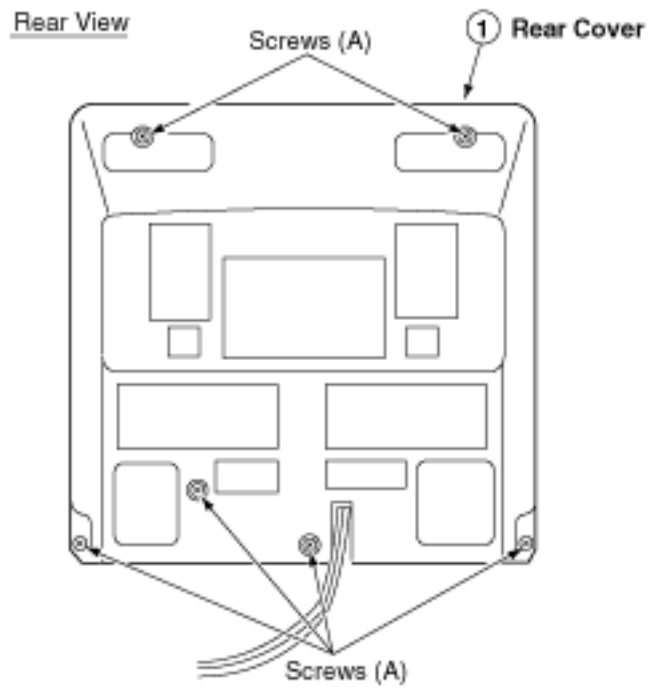
Fig. D2-1



(Model: G, H, I)

1. Remove 6 Screws (A). Then, pull the Rear Cover away

Fig. D2-2



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6.1.3 VCR Unit

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[6.1.3.1 Disassembly Procedure](#)

[6.1.3.2 Reassembly Notes](#)

[6.1.3.2.1 Install the VCR Unit as follows:](#)

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6.1.3.1 Disassembly Procedure

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1. Discharge the Anode to the CRT Ground. Then, remove the Anode Cap.
2. Disconnect the Connector P354 from the CRT C.B.A. and remove the lead from the clamper.
3. Carefully pull out the CRT C.B.A. from the CRT Unit.
4. Disconnect the Deflection Yoke Connector and the Degaussing Coil Connector from the Main C.B.A.

Then, remove the leads from the clampers.

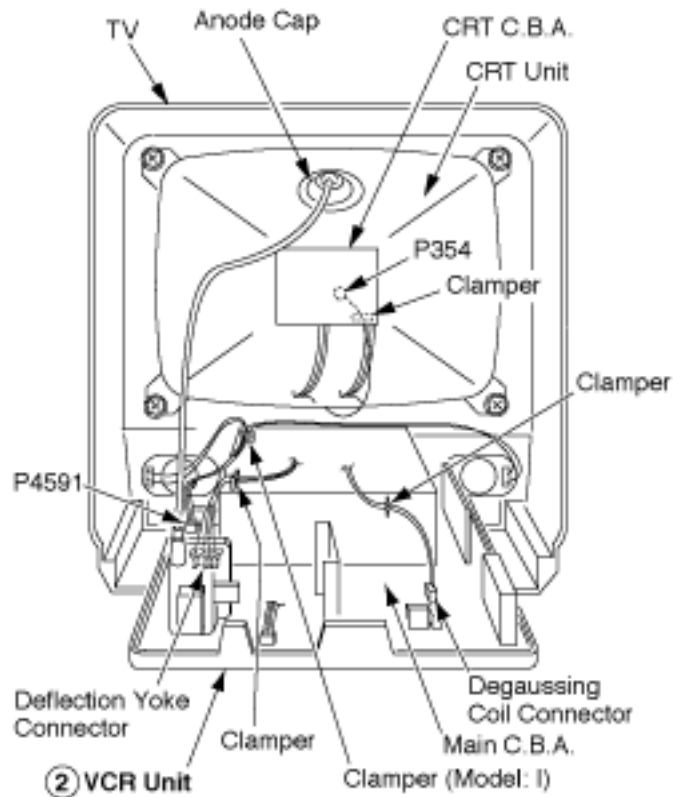
5. (Model: A, B, C, D, E, F, G, H)

Disconnect the Connector P4591 on the Main C.B.A.

(Model: I)

Disconnect the Connector P4591 on the Main C.B.A. and remove the leads from the clamper.

Fig. D3-1

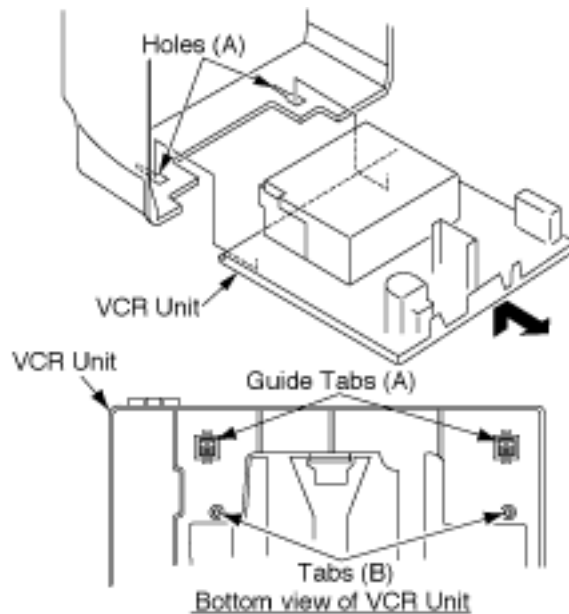


6. Slightly lift up the rear side of the VCR Unit to release 2 Tabs (B).

7. Slide the VCR Unit out as far as it will go.

Then, lift up the VCR Unit to release 2 Guide Tabs (A) and remove the VCR Unit all the way out from the TV cavity.

Fig. D3-2



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6.1.3.2 Reassembly Notes

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CAUTION:

Opener Lever may be damaged when VCR Unit is installed, with Cassette Door-Lid and Opener Lever of Cassette Up Ass'y set incorrectly.

6.1.3.2.1 Install the VCR Unit as follows:

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6.2.4 Upper Cylinder Unit

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[6.2.4.1 Disassembly Procedure](#)

[6.2.4.2 Reassembly Notes](#)

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6.1.4.1 Disassembly Procedure

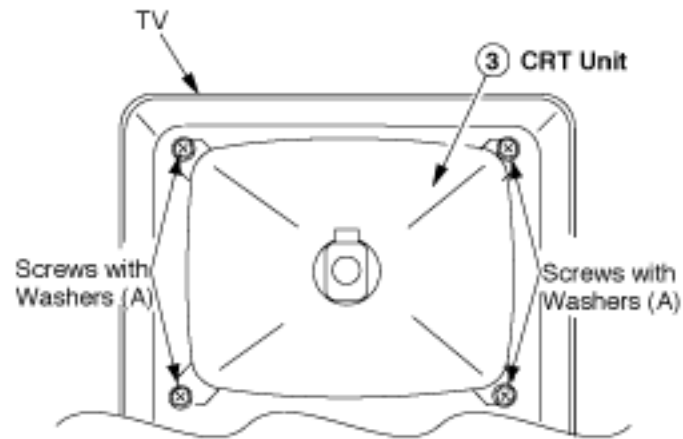
[TOP](#) [PREVIOUS](#) [NEXT](#)

1. Remove 4 Screws with Washers (A). Then, pull out the CRT Unit.

Note:

Place the Unit face down on a soft cloth before removing the CRT Unit.

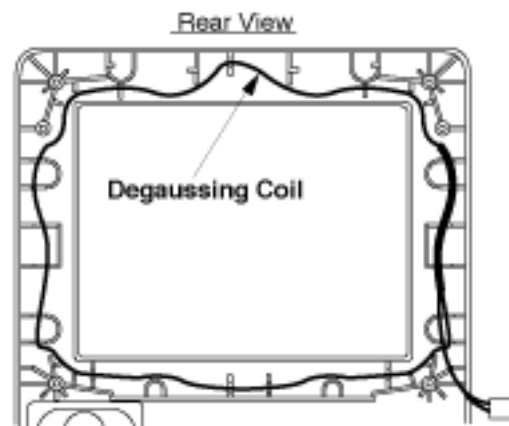
Fig. D4-1



(Model: A, B, C, D, E, F)

2. Remove the Degaussing Coil.

Fig. D4-2



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6.1.4.2 Reassembly Notes

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1. When installing Degaussing Coil, place it in the correct position.

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6.1.5 Top Shield Plate Ass'y

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[6.1.5.1 Disassembly Procedure](#)

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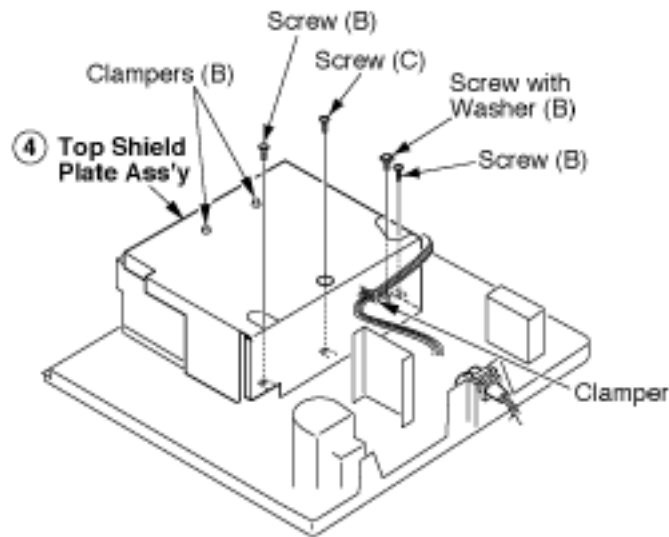
6.1.5.1 Disassembly Procedure

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1. Remove 2 Screws (B), Screw (C), and Screw with Washer (B).
2. Release the 2 Clampers (B) on the Top Shield Plate Ass'y and remove the leads from the clamper.

Then, Remove the Top Shield Plate Ass'y.

Fig. D5



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6.1.6 VCR Chassis Unit

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[6.1.6.1 Disassembly Procedure](#)

[6.1.6.2 Reassembly Notes](#)

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6.1.6.1 Disassembly Procedure

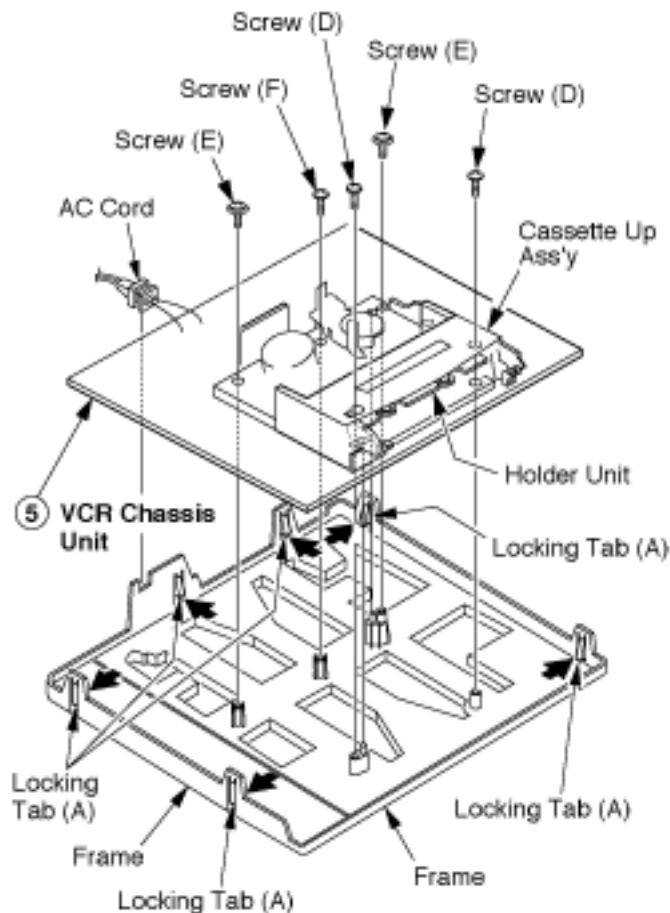
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1. Slide the Holder Unit (refer to "[METHOD FOR LOADING/UNLOADING OF MECHANISM](#)" in Service Notes) to gain access to 2 Screws (D) for removal.
2. Remove 2 Screws (E) and Screw (F).
3. Remove the AC Cord from the frame.
4. While releasing 6 Locking Tabs (A) and lift the VCR Chassis Unit out of the Frame.

Note:

Work carefully so as not to break tab.

Fig. D6



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6.1.6.2 Reassembly Notes

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1. When installing 2 Screws (D), slide the Holder Unit (refer to "[EJECT Position Confirmation](#)" in Service Notes) to tighten screws. Then, slide it back to the [EJECT](#) Position.

Make sure that Mechanism and Cassette Up Ass'y are in the [EJECT](#) Position. (Refer to "[EJECT Position Confirmation](#)" of Mechanism Section in Disassembly/Assembly Procedures.)

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6.1.7 Main C.B.A.

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[6.1.7.1 Disassembly Procedure](#)

[6.1.7.2 Reassembly Notes](#)

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6.1.7.1 Disassembly Procedure

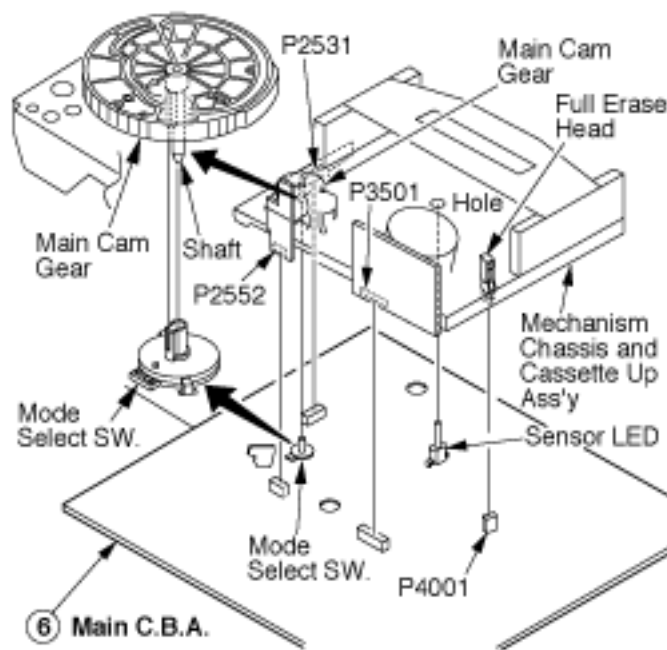
[TOP](#) [PREVIOUS](#) [NEXT](#)

1. Disconnect 4 Connectors of P2531, P2552, P3501 and P4001.
2. Carefully lift the Mechanism Chassis and Cassette Up Ass'y straight out from the Main C.B.A.

Note:

Work carefully so as not to break Sensor LED when lifting the Mechanism Chassis and Cassette Up Ass'y.

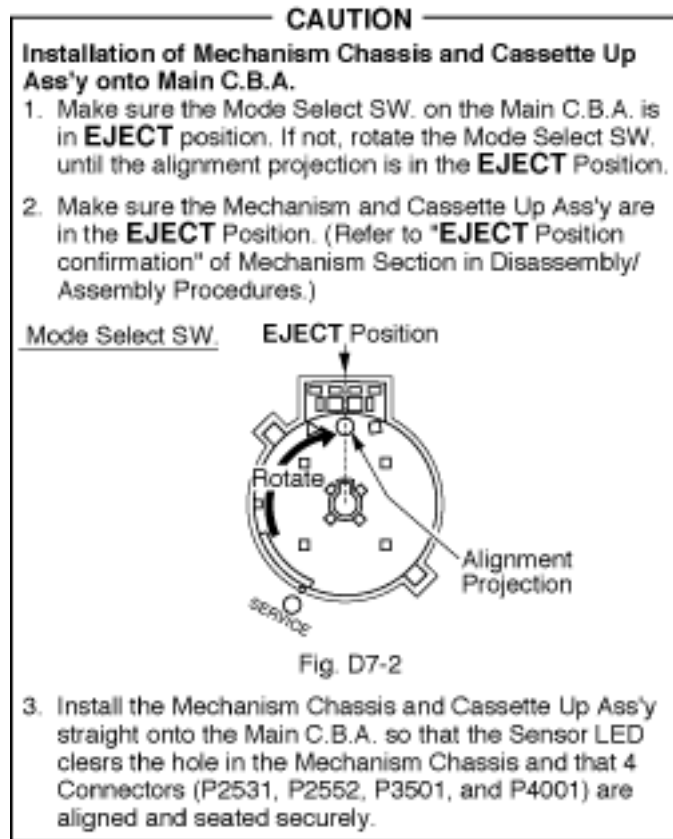
Fig. D7-1



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6.1.7.2 Reassembly Notes

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6.1.8 Cassette Up Ass'y

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[6.1.8.1 Disassembly Procedure](#)

[6.1.8.2 Reassembly Notes](#)

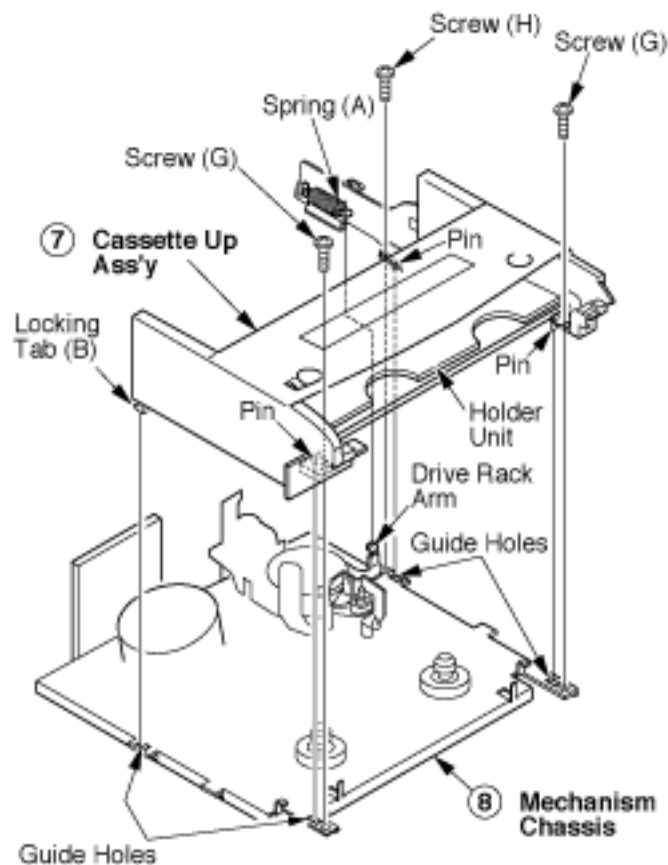
[TOP](#) [PREVIOUS](#) [NEXT](#)

6.1.8.1 Disassembly Procedure

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1. Slide Holder Unit (refer to "[METHOD FOR LOADING/UNLOADING OF MECHANISM](#)" in Service Notes) to gain access to 2 Screws (G) for removal.
2. Remove Screw (H).
3. Unhook Spring (A).
4. Slide the Cassette Up Ass'y towards the front to release Locking Tab (B). Then, lift it up and remove.

Fig. D8



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6.1.8.2 Reassembly Notes

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Installation of Cassette Up Ass'y

1. Confirm that the 3 pins and Locking Tab (B) under the Cassette Up Ass'y are in each of the 4 Guide Holes on the Mechanism Chassis when installing the Cassette Up Ass'y. Then, slide the Cassette Up Ass'y towards the back.

Slide Holder Unit (refer to " [METHOD FOR LOADING/UNLOADING OF MECHANISM](#) " in Service Notes) to tighten 2 Screws (G) and Screw (H).

Be careful not to tighten screws too much, or the Cassette Up Ass'y may be bent outward.

Then, slide it back to the EJECT Position.

2. Hook Spring (A) to the Drive Rack Arm on the Mechanism Chassis.

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6.2 MECHANISM SECTION

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[6.2.1 Disassembly Method](#)

[6.2.2 EJECT Position Confirmation](#)

[6.2.3 Cylinder Unit](#)

[6.2.3.1 Disassembly Procedure](#)

[6.2.3.2 Reassembly Notes](#)

[6.2.4 Upper Cylinder Unit](#)

[6.2.4.1 Disassembly Procedure](#)

[6.2.4.2 Reassembly Notes](#)

[6.2.5 Opener Piece, Pinch Arm Unit, Motor Block Ass'y, and Audio Control Head Unit](#)

[6.2.5.1 Disassembly Procedure](#)

[6.2.5.2 Reassembly Notes](#)

[6.2.6 Main Cam Gear and Drive Rack Arm](#)

[6.2.6.1 Disassembly Procedure](#)

[6.2.6.2 Reassembly Notes](#)

[6.2.7 Main Lever](#)

[6.2.7.1 Disassembly Procedure](#)

[6.2.7.2 Reassembly Notes](#)

[6.2.8 P5 Arm Unit and Main Lever Drive Arm](#)

[6.2.8.1 Disassembly Procedure](#)

[6.2.8.2 Reassembly Notes](#)

[6.2.9 T Brake Unit, Changing Lever A, and T Reel Table](#)

[6.2.9.1 Disassembly Procedure](#)

[6.2.9.2 Reassembly Notes](#)

[6.2.10 Full Erase Head, Tension Arm Unit, S Spring Arm, and S Reel Table](#)

[6.2.10.1 Disassembly Procedure](#)

[6.2.10.2 Reassembly Notes](#)

[6.2.11 S Brake Arm Unit, Main Lever Guide, Loading Post Base -S, and Loading Post Base -T Unit](#)

[6.2.11.1 Disassembly Procedure](#)

[6.2.11.2 Reassembly Notes](#)

[6.2.12 Capstan Rotor Unit, Capstan Holder Unit, and SS Brake Arm Unit](#)

[6.2.12.1 Disassembly Procedure](#)

[6.2.12.2 Reassembly Notes](#)

[6.2.13 Junction C.B.A., Capstan Stator Unit, Sub Rotor, and PCB Holder](#)

[6.2.13.1 Disassembly Procedure](#)

[6.2.13.2 Reassembly Notes](#)

[6.2.14 T Loading Arm Unit and S Loading Arm Unit](#)

[6.2.14.1 Disassembly Procedure](#)

[6.2.14.2 Reassembly Notes](#)

[6.2.15 Center Clutch Unit, Changing Gear Spring, Changing Gear, Changing Lever-B, and Idler Arm Unit](#)

[6.2.15.1 Disassembly Procedure](#)

[6.2.15.2 Reassembly Notes](#)

[6.2.16 Loading Rack Unit](#)

[6.2.16.1 Disassembly Procedure](#)

[6.2.16.2 Reassembly Notes](#)

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6.2.1 Disassembly Method

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Fig. J1-1

This chart indicates Step/Location No. of Parts to be serviced and prior steps to gain access items to be serviced when disassembling. When reassembling, perform the step(s) in the reverse order.

Step/Location No.	Part	Prior Step(s)	Step/Location No.	Part	Prior Step(s)	Step/Location No.	Part	Prior Step(s)	Step/Location No.	Part	Prior Step(s)
①	Cylinder Unit	-----	⑪	Main Lever Drive Arm	3, 4, 5, 7, 8, 9	⑲	Loading Post Base-S Unit	16	⑳	S Loading Arm Unit	30
②	Upper Cylinder Unit	-----	⑫	T Brake Unit	9	⑳	Loading Post Base-T Unit	9, 20	㉑	Center Clutch Unit	-----
③	Opener Piece	-----	⑬	Changing Lever A	9	㉒	Capstan Rotor Unit	-----	㉓	Changing Gear Spring	32
④	Pinch Arm Unit	3	⑭	T Reel Table	9, 12, 13	㉔	Capstan Holder Unit	23	㉕	Changing Gear	32, 33
⑤	Motor Block Ass'y	-----	⑮	Full Erase Head	-----	㉖	SS Brake Arm Unit	-----	㉗	Changing Lever-B	32, 33, 34
⑥	Audio Control Head Unit	5	⑯	Tension Arm Unit	-----	㉘	Junction C.B.A.	-----	㉙	Idler Arm Unit	32, 33, 34
⑦	Main Cam Gear	3, 4, 5	⑰	S Spring Arm	-----	㉚	Capstan Stator Unit	23, 25, 26	㉛	Loading Rack Unit	9, 30
⑧	Drive Rack Arm	3, 4, 5, 7	⑱	S Reel Table	16, 17	㉜	Sub Rotor	23, 25, 26, 27	㉝	Grounding Plate Unit	-----
⑨	Main Lever	-----	㉑	S Brake Arm Unit	9, 16, 17, 18	㉞	PCB Holder	23, 25, 26, 27	㉟	FG Head	-----
⑩	P5 Arm Unit	9	㉒	Main Lever Guide	9	㊱	T Loading Arm Unit	-----			

Step/Loc. No.: Order of steps in procedure.

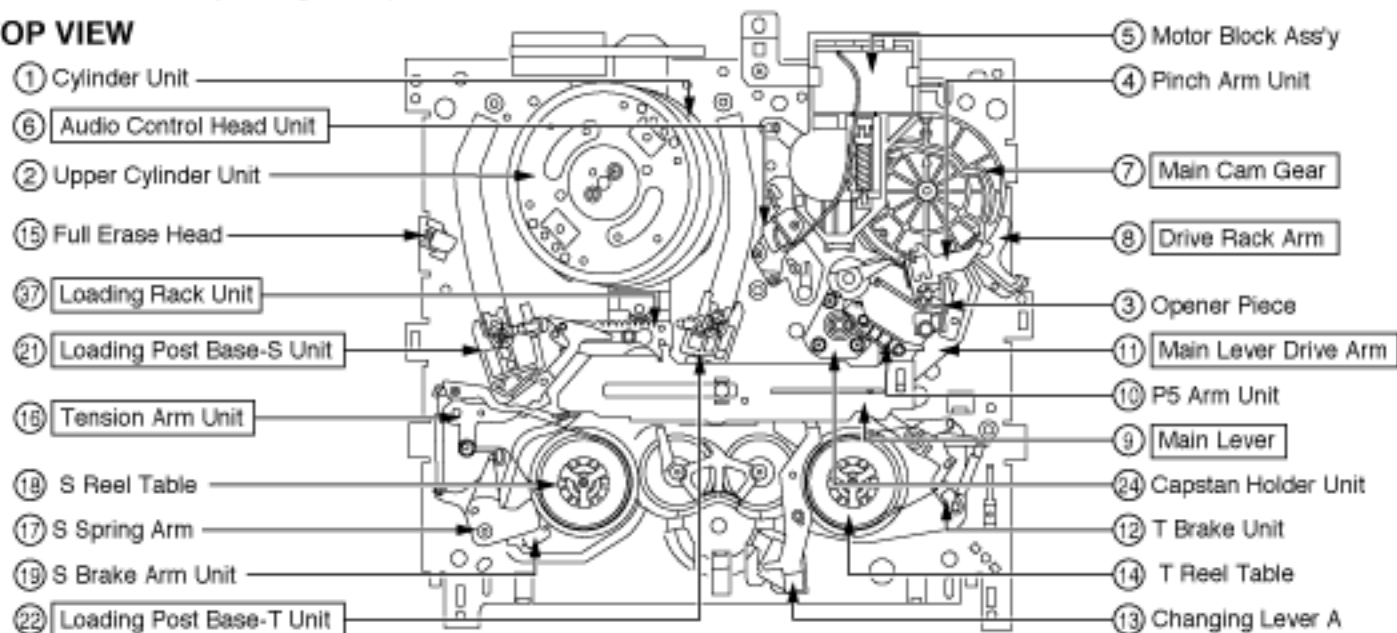
Part : Part to be removed or installed.

Prior Step(s) : Steps to be completed prior to the current step.

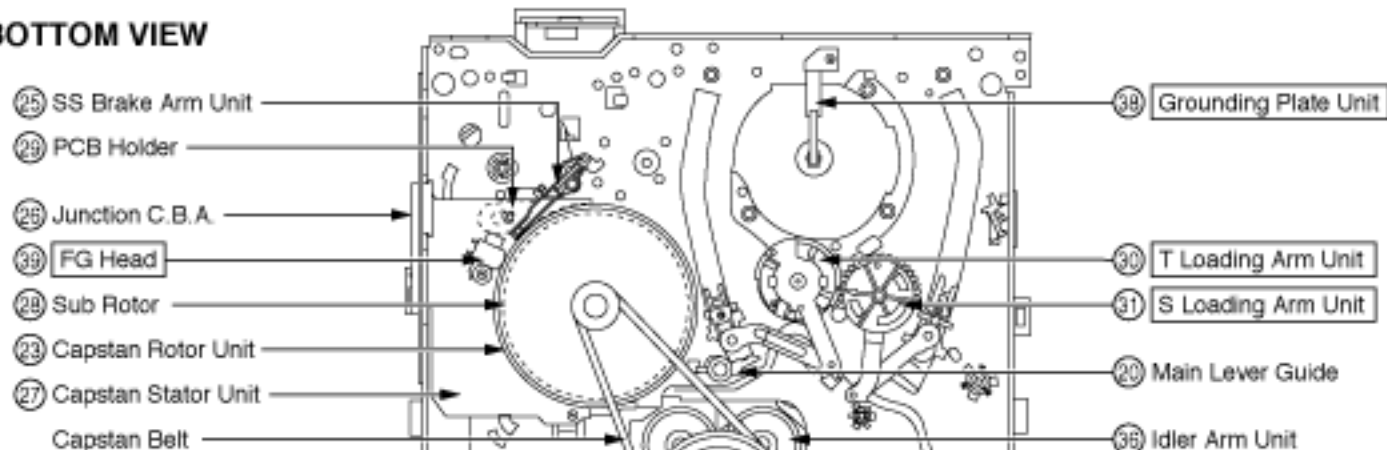
Note: When the mechanical parts surrounded by rectangle are removed or replaced, be sure to perform necessary adjustment or alignment procedures according to the mechanical adjustment procedures section and disassembly/assembly procedures of mechanism section.

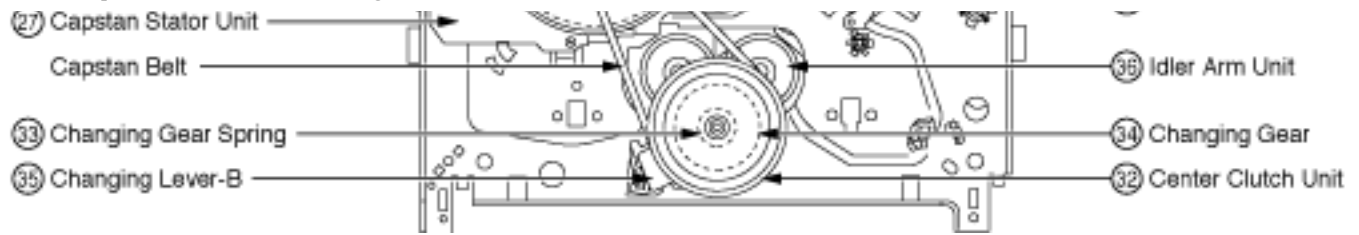
Perform all disassembly and alignments procedures in EJECT Position.

TOP VIEW



BOTTOM VIEW





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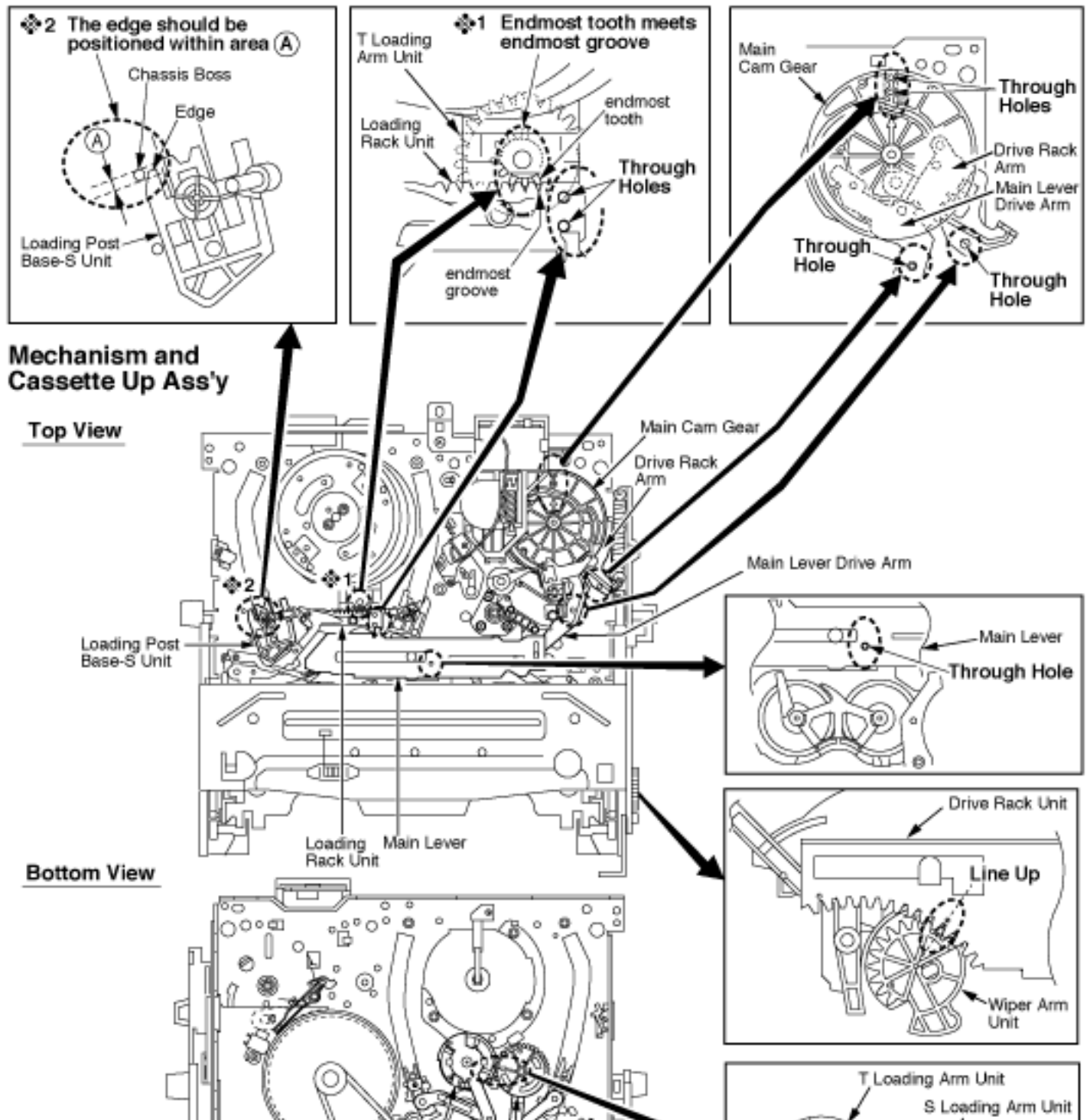
6.2.2 EJECT Position Confirmation

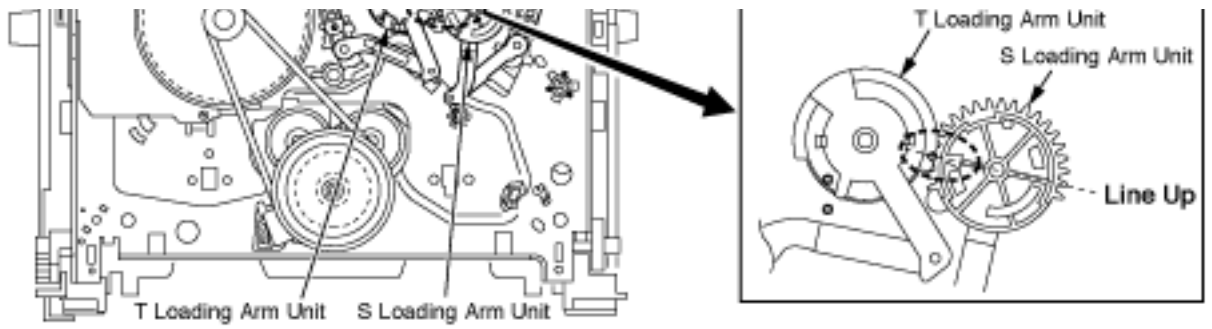
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Fig. J1-2

Check the following alignment points to confirm that the Mechanism and Cassette Up Ass'y are in the **EJECT** Position from the top side.

(By using alignment points ❶ & ❷, it is possible to roughly confirm the S & T Loading Arm Units from the top side, even though they are located on the bottom side of the mechanism chassis.)





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6.2.3 Cylinder Unit

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[6.2.3.1 Disassembly Procedure](#)

[6.2.3.2 Reassembly Notes](#)

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6.2.3.1 Disassembly Procedure

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1. Remove 3 Screws (A) and 2 Screws with Washers (A). Then, lift the Cylinder Unit and the Head Amp C.B.A. out from the mechanism.
2. Unsolder P3502 and P3503. Then, remove the Head Amp C.B.A.

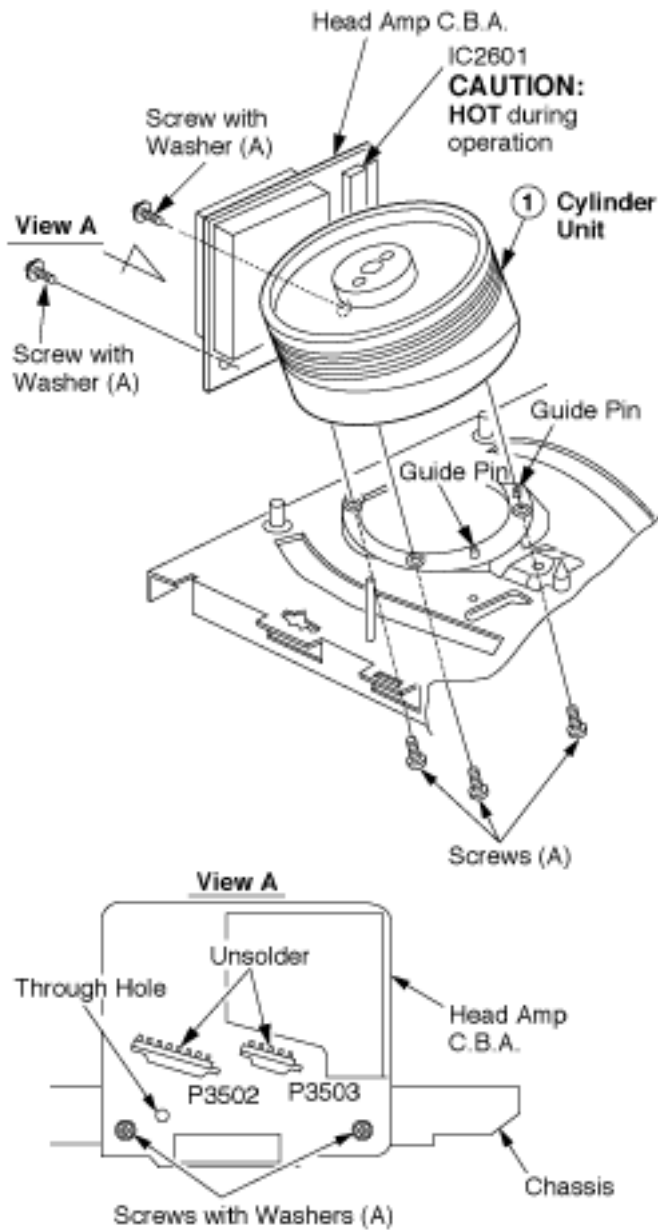
Note:

Use extreme care when removing or replacing the Cylinder Unit. Do not touch the Video Heads during servicing.

CAUTION:

When removing the Cylinder Unit, avoid touching IC2601 on the Head Amp C.B.A. because it is **HOT** during operation.

Fig. J2-1



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6.2.3.2 Reassembly Notes

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1. Use extreme care when removing or replacing the Cylinder Unit. Do not touch the Video Heads during servicing.
2. [Installation of Cylinder Unit](#)
 1. Install the Cylinder Unit so that the 2 holes on the lower surface of the Cylinder Unit fit over the 2 Guide Pins on the Cylinder Base and loosely secure it with 3 Screws (A).
 2. Install the Head Amp C.B.A. so that the hole on the Head Amp C.B.A. lines up with the hole on the chassis and secure it with 2 Screws with Washers (A).
 3. Position the Cylinder Unit so that foil patterns of connectors (P3502 and P3503) and Head Amp C.B.A. are aligned, and tighten 3 Screws (A).
 4. Solder connectors (P3502 and P3503).

[Adjustment of Grounding Plate Unit](#)

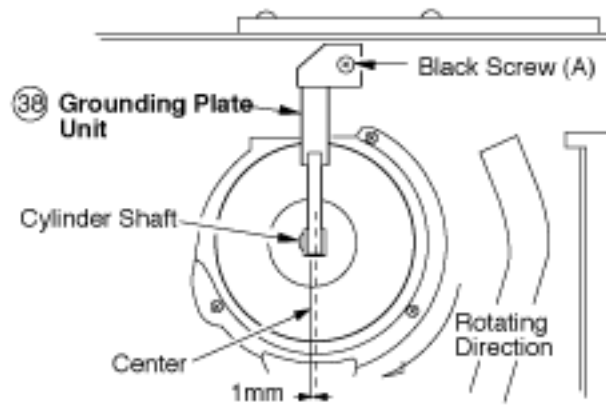
1. After installing, make sure that the Grounding Plate Unit, on the bottom side of mechanism chassis, is positioned on the right side of the Cylinder shaft so that the center line of the plate is just less than 1.0 mm measured from the center of the Cylinder shaft.

If required, adjust the plate position by loosening Black Screw (A).

Never install the Grounding Plate Unit on the left side of the Cylinder shaft.

Incorrect positioning will cause cylinder buzz.

Fig. J2-2



3. After installing, perform the "[TAPE INTERCHANGEABILITY ADJUSTMENT \(FINAL ADJUSTMENT\)](#)" procedures.

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